

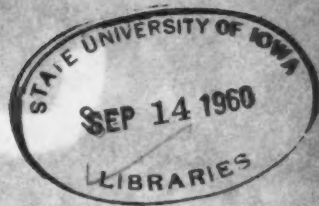
Educ

CTA

JOURNAL

CALIFORNIA TEACHERS ASSOCIATION

SEPTEMBER • 1960



V156⁶



How will teaching machines affect education?

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Official Publication of the
California Teachers Association

OUR COVER: Ancient cave paintings of half a million years ago become the background of our cover illustration this month, putting in sharp focus a photograph of a demonstration of a modern electronic teaching machine. "Primeval Wall" is the title of the illustration used with an ad in the Great Ideas of Western Man series by Container Corporation of America. Winning top honors as the No. 1 public service advertisement of the year in the *Saturday Review* contest, the ad contained the words "A teacher affects eternity; he can never tell where his influence stops," a quotation from Henry Brooks Adams. As implied by the cover caption, this issue contains 14 pages describing and discussing teaching machines, first feature section in a *Journal* series on "What's New in Education?" In contrast to the primitive pictograph the Madison Devlin photograph shows Science Teacher Henry M. Williams of Willard junior high school, Berkeley, instructing Eighth-grader Leslie Stewart in the operation of Western Design's *Auto Tutor*. A teachers' workshop at San Francisco State College last June exhibited most of the new machines which are described in detail in this issue.

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NEWS OF STATE AND NATION

MEMBERSHIP AT NEW HIGH—CTA membership recorded in the state headquarters office as of July 31 passed the 112,370 mark, to reach a point 9,923 higher than the same date in 1959. Section totals for regular memberships (excluding student and retired) were: Bay 29,585, Central 10,087, Central Coast 2,854, North Coast 1,563, Northern 9,146, Southern 53,913. Total SCTA membership this date was 4,907. NEA membership as of May 31 was 61,227 in California, the largest gain reported by any state.

NEW CTA CHARTERED CHAPTERS reported since the last listing here in March, include the following: No. 634, Rim of the World Teacher's Association, San Bernardino county; No. 635, County Education Center Association, El Centro, Imperial county; No. 636, Hesperia Association of Teachers, Hesperia, San Bernardino county; No. 637, Holtville Teachers Association, Holtville, Imperial county; No. 638, Valle Lindo Teachers Association, San Gabriel, Los Angeles county; No. 639, Edison Teachers Association, Kern county; No. 640, Sunset High School Teachers Association, Hayward, Alameda county; No. 641, Newhall Elementary School District Teachers Association, Newhall, Los Angeles county; No. 642, San Pasqual Teachers Club, Winterhaven, Imperial county; No. 643, Merced County Schools Office Teachers Association, Merced, Merced county; No. 644, Mariposa County Division Teachers Association, Mariposa, Mariposa county; No. 645, Parlier Faculty Club, Parlier, Fresno county; No. 646, Hilmar Unified School District Teachers Association, Hilmar, Merced county; No. 647, Cloverdale Teachers Association, Cloverdale, Sonoma county; No. 648, Vacaville Union High School Teachers Association, Vacaville, Solano county; No. 649, Clovis Unified Teachers Association, Clovis, Fresno county.

DR. JESSE D. MOSES, for the past two years president of the Pasadena Education Association, was the first Negro to become an administrator in Pasadena schools when he was named vice-principal of McKinley junior high school in July.

DR. LUCIEN B. KINNEY of Stanford and **DR. B. LAMAR JOHNSON** of UCLA were named by University of Minnesota this summer for 1960 Achievement Awards to outstanding alumni.

JOHN HAY FELLOWSHIPS are available for the first time to California public high school teachers. Seventy-five fellowships for 1961-62 will be awarded for study in the humanities at six universities, with stipends equal to salaries. Information may be obtained from Dr. Charles R. Keller, 9 Rockefeller Plaza, New York 20.

NEW PASADENA HIGH SCHOOL, opening this month with 3,200 tenth, eleventh, and twelfth grade students, complete Pasadena's transition from the 6-4-4 system to the 6-3-3-2 type of organization. All junior high schools will be on a three-year basis and Pasadena City College will occupy the entire Colorado Street campus.

FRANK WALKUP, for 32 years teacher, principal, and acting superintendent of Pasadena schools system, retired in June. The new library at John Muir high school, where he served as principal, was dedicated in his honor by the local PTA.

DR. EDWARD H. ROWINS became president of Ventura College in July. He had formerly been assistant superintendent in Pasadena, where he pioneered the personnel services system.

MRS. THEODORA SHAW, teacher for 37 years, and **JOE LAVERONI**, head custodian and bus driver for 25 years, were honored by the people of San Juan Bautista when they retired this summer.

VOTERS NOMINATED 19 teachers and professors in California's June primaries. On November ballots, running for state Assembly will appear the names of Dr. Hugh M. Tiner, former president of Pepperdine College; Charles P. Sohner, Manhattan Beach college teacher; Houston I. Flournoy, Claremont professor; incumbent Charles B. Garrigus, Reedley College history and philosophy instructor; and Dore Sharpe, Pasadena educational consultant. Teachers also candidates include David Wofford of Fortuna, incumbent Lloyd Lowrey of Rumsey, Kathryn T. MacMillan of Sacramento, incumbent Carlos Bee of Hayward, A. H. Muschi and E. R. Scrofani of San Francisco, Alan L. Baldwin of Redwood City, Jack T. Casey of Bakersfield, Fletcher R. Flynn of San Gabriel, and Charles Manford of North Hollywood. For state Senate posts, teacher candidates include incumbent Albert S. Rodda, Sacramento; Thomas F. Nolan, San Luis Obispo; and Weir G. Smith, Hanford.

RETIREMENT PAYMENTS are fixed by statute and erroneous information or advice given by State Teachers Retirement System can cause a teacher to lose benefits without recourse, states a recent opinion from CTA attorneys. Best counsel is doublecheck information against legal definitions of rights.

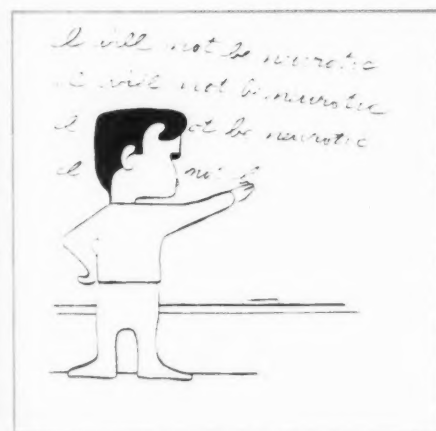
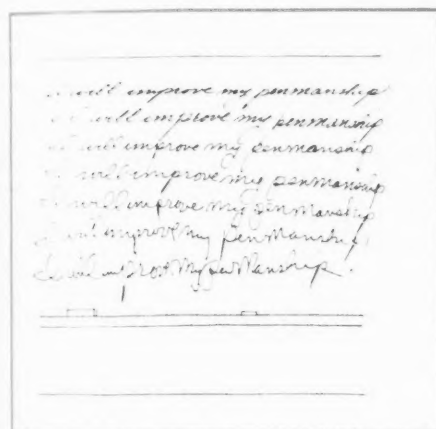
OVERWORK killed Joe Nightingale, former superintendent of Orcutt elementary district, who died of a heart attack last spring. This was opinion of a California compensation referee, who awarded the widow \$15,000 on grounds the board would not allow needed staff help in a fast-expanding district.

ARCOSS (Association for Retirement Credit for Out-of-State Service) is distributing an attractive six-page folder which describes graphically the discrepancies in retirement benefits received by experienced teachers who came to California after 1944 and those who had their total employment experience in this state. The Association continues to seek \$5 annual memberships, aimed at reducing problems of retirement credit. Information from John F. Land Jr., treasurer, 1705 Murchison Dr., Burlingame.

ERNEST P. BRANSON, 76, pioneer director of research for Long Beach schools for 31 years, died in Idyllwild last February. He was one of the founders of the Bureau of Welfare of CTA Southern Section.

YOUNG SCIENTISTS who won top places in the annual Bay Area Science Fair and who took their projects and their teachers to the national fair in Indianapolis in June were Donald Shapero, 17, Cubberly high, Palo Alto, and Clare Martin, 17, El Cerrito high.

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LESLIE LANDIN, principal of Foothill elementary school at Saratoga, Santa Clara county, started drawing cartoons for *CTA Journal* eight years ago. Of the dozens which have appeared in print on these pages, the most popular were those of the little boy's handwriting on the blackboard. Reproduced above are the five sketches, beginning with "maladjusted" on the cover of the October 1954 issue and continuing to "neurotic" for January 1959.

We thought it entirely appropriate that the determined little pupil, in need of mild disciplinary action, should bring the story of his life at the black-

board up to date. He does this, as you see, under the baleful eye of the electronic automated teaching machine, thus setting a humorous introduction for the theme of this issue.

This is the only humorous note in the *Journal's* serious appraisal of the growth and development of a weird and wonderful technology in the instructional processes of modern education.

Landin, 36, A.B. from Pepperdine College, M.A. from San Jose State College, is the author of several books on the use of cartoons in teaching. He was originator of the "Buckskin Bob" cartooned history series on KQED, San Francisco.

NEA Debates Position on Integration

A DELEGATE ASSEMBLY debate on integration in the schools, fought out word for word during a heated four-hour session, was one of the spectacular features of the 98th annual convention of the National Education Association in Los Angeles June 26 to July 1.

A slight stiffening of the three-year-old resolution on integration (retitled *Desegregation in the Public Schools*) was followed by a Board of Directors authorization of a meeting of southern leaders to draft a new "satisfactory to all" statement. Strong leaders in the movement to "insert an E before 'quality' in education" were spokesmen from the New York and California delegations.

For the first time in 29 years, NEA returned to Los Angeles for its annual meeting, drawing 5708 delegates, 2492 alternates, and up to 12,000 visitors. California's official delegation, largest in the convention, totaled 815 teachers and administrators.

Walter W. Eshelman, of Fort Washington, Pa., president of NEA for the past year, presided at general sessions during the crowded week. On July 1 he turned the gavel over to Miss Clarice Kline of Waukesha, Wis., who was named president-elect in St. Louis a year ago.

Ewald Turner, junior high school crafts teacher of Pendleton, Oregon, and former president of the Department of Classroom Teachers, was elected vice president (president-elect) in closely contested balloting with Forrest Rozzell, executive secretary of the Arkansas Education Association, and William B. O'Donnell, vice president of New Mexico State University.

Cecil J. Hannan, field service director of the Washington Education Association, was elected to the NEA executive committee. Miss Inez Gingerich of Oklahoma was reelected to the same body.

Whether or not the organized teaching profession in the U.S. could succeed this year in its most recent bid for federal support of education was the theme of leading lawmakers and educators at several sessions of the convention. Major speeches were made by Rep. Lee Metcalf (D., Mont.), Sen. John Sherman Cooper (R., Ky.), and Rep. Stuart L. Udall (D., Ariz.). The Board of Directors sent telegrams to all members of Congress urging enactment of the federal support bill before adjournment, following passage of a strong resolution of endorsement by the Delegate Assembly. (See detailed story on this subject on pages 18-19 of this issue.)

Disappointing to California's NEA Relations Commission was action of the Delegate Assembly in turning down by a vote of almost 2 to 1 a proposal to amend the NEA bylaws to provide clear responsibility of the NEA Board of Directors and Executive Committee. The proposal, submitted by California last year (and described in detail on pages 42-43 of the January 1960 *CTA Journal*) would have made the Committee responsible to the Board. In the final showdown, no state offered strong support for the California initiative, but strong opposition came from the Department of Classroom Teachers. John Palmer, CTA president and spokesman of the California delegation, said no immediate

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MISS CLARICE KLINE, incoming president of the NEA, poses with three California NEA directors. Shown, left to right, are John Palmer, CTA president and outgoing NEA director; Jennie Sessions, Miss Kline, and Hazel Blanchard. California is the only state now having four NEA directors. Mrs. Blanchard is the senior director and chairman, Jack Robinson succeeds Palmer as the Board-appointed director, Myrtle M. Flowers succeeds Miss Sessions for the three-year term starting in July, and Melvin Keller assumed a directorship as a representative of the Bay Section.

Resolution on Desegregation

Text of Resolution No. 14, entitled "Desegregation in the Public Schools," adopted by the NEA Delegate Assembly in Los Angeles June 30, was as follows:

The National Education Association believes that integration of all groups in our public schools is an evolving process which concerns every state and territory in our nation.

The Association urges that all citizens approach the matter of desegregation in the public schools with the spirit of fairness, good will, and respect for law which has always been an outstanding characteristic of the American people. It is the conviction of the Association that all problems of desegregation in our schools are capable of solution at the state and local levels by citizens of intelligence, saneness, and reasonableness working together in the interests of national unity for the common good of all.

The Association commends the communities which have handled their problems regarding desegregation in such a manner as to assume their responsibility to maintain the public schools and their obligation to recognize the political and professional rights of teachers. It commends also the officers and directors of the National Education Association for their vigorous and effective support of state and local education associations when the professional rights and status of teachers were unfairly menaced and for having prepared and published the forthcoming National Education Association report—*Studies of Educational Problems Involved in School Integration*.

Teacher Understanding -- Key to the New Technology

By James D. Finn

IN THE PAGES which follow, California teachers can get a good picture of some of the developments in instructional technology taking place in America today. This symposium, thoughtfully designed by the Editor, presents an excellent condensation of some of the main ideas and developments in the field of teaching machines and language laboratories—what we prefer to call self-instructional or auto-instructional devices. While the writers are enthusiastic about technological approaches to instruction, the thoughtful reader will find solid information with a minimum of advocacy.

I find it necessary to mention this fact because, in my travels during the past year, I have observed a certain degree of unrest in the profession, apparently caused by the swift pace of the development of instructional technology. Teaching, an essentially human activity, seems, to some people, somehow unrelated and even opposed to the concept of a machine technology. Instinctively, many workers in education, while intellectually agreeing that the need for greater efficiency is desperate and the need to provide the practicing teacher with the means to relieve her of the burden of 19th Century approaches to 20th Century problems is imperative, still emotionally feel that the very essence of their profession, its humanity, is in the process of being violated.

However, this feeling is best dispelled by knowledge. Not too long ago I watched a third grade teacher as she listened to a curriculum director in a southern state expound at length on how teaching machines, for example, would stifle creativity on the part of both teachers and students and should be abolished before they were built and tested. Just before this session, the teacher in question had had a chance to try out a machine that had been programmed in elementary arithmetic. Very quietly she told the curriculum director that, as far as she was concerned, she would immediately like ten of the machines in her classroom. Supervising drill, she indicated, was difficult, boring and actually prevented her from doing other important things. Furthermore, for certain kinds of drill and development activities, she felt that the machine was more consistent and easier on the student. She was already making plans for what she might do if the proper programs and machines could be supplied her.

There is, I think, a point of some significance here. Not all of the bits and pieces of instructional technology are going to work; even all the workable elements put together represent no packaged solution to California's or America's educational problems. We think, however, the teacher is entitled to as much from our technological culture as the doctor or the engineer—the instrumentation, the systems, the diagnostic tools and all the rest. When understood in this light, emotional reactions disappear and intelligent decisions regarding selection and use can take their place.

The teaching profession in California needs a much better instructional technology than it now has (and California leads the nation in this respect now); the teachers of California need to understand what is going on in this field in order to control and assist in developing this technology. Therefore, this symposium on a part of the new instructional technology—teaching machines—is very important to every teacher in California as it opens the door to understanding. The California Teachers Association is to be congratulated for making it available. ★★

Dr. Finn is professor of education at the University of Southern California and president of the NEA Department of Audio-Visual Instruction. His photograph appears on the next page and again on page 31.

"IF THE AUDIO-VISUAL MOVEMENT has done nothing else for American education in the fifty years of its modern development, it has attempted to improve instruction by creating, testing and selling a gradually improving instructional technology." Thus states Professor James D. Finn in his foreword to the recent book, *Teaching Machines and Programmed Learning*.

The audio-visualists are the technologists of the teaching profession. For years they have been concerned with the educational implications of "machines that teach"—motion picture projectors, cameras, television, tape recorders, and the many others. Perhaps it is this experiential background that has made them a little less fearful and a little more open-minded than the average educator when faced with the newer educational possibilities of television and teaching machines.

A basic assumption of responsible audio-visual leaders during the past half century has been that no device or combination of devices can replace the teacher. Since the time of the first textbook, the history of education has been replete with "things" that have threatened the insecure teacher. To date nothing has replaced the skilled teacher and, when we seriously consider the present goals of education in our society, the likelihood of a completely automated educational system seems remote, almost foolhardy. It does seem apparent, however, that our knowledge about learning combined with recent technological developments already is making some roles of the teacher obsolete.

Machines offer constructive aids

DAVI has taken leadership in acquainting educators with teaching machines and other related self-instructional devices, the research pertaining to their use, and much more significant, the underlying concept of programming. To date DAVI has published: *Teaching Machines: An Annotated Bibliography* (80 pages), several articles in its two journals, and the 736-page source book of readings cited in the opening paragraph. This latter book brings together for the first time the widely scattered literature dating from 1926 to 1960. Attention has been given to this rapidly developing field at national and state AV conventions, and assistance has been given to other educational organizations wishing to inform their members through conferences, publications, and other means. (*The book may be ordered from DAVI at \$7.50 a copy. See brief review in this issue.*)

Never again should the teaching profession be caught off-guard as it was with the advent of television when, having insufficient information and no developed frame of reference, we reacted negatively with "but TV can't replace the teacher." No technological development can solve all the problems of education, but it does behoove us to explore each new development with open minds, and to adapt the deserving ones to the demands of good educational practice. This may call for reassessment of many of our present educational practices—in curriculum planning, construction of school buildings, teacher education, school finance, and school administration.

In keeping with this philosophy, the NEA under an NDEA contract with USOE, is undertaking a two-year study of the impact of present and predicted technological develop-

Dr. Hyer is executive secretary and Dr. Snider is assistant executive secretary of the NEA Department of Audio-Visual Instruction. For descriptive brochures on the books mentioned above, address DAVI at 1201 Sixteenth St. N.W., Washington 6, D.C.

The Profession and the

MACHINE

By Anna L. Hyer and Robert C. Snider

ments on elementary-secondary and teacher-education. Two phases are planned; the first will be the development of a philosophical statement of the problem—a kind of base line document—built upon a thoughtful assessment. The second phase will involve the stimulation of an intense nation-wide discussion of the impact, arriving at a statement of guidelines for the profession. James Finn, of the University of Southern California, has agreed to direct phase No. 1 for the NEA.

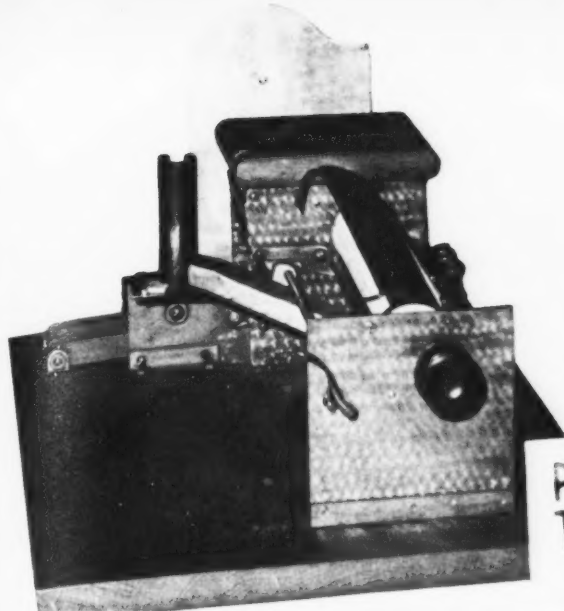
Future classrooms will be changed

Life would be simpler if it were possible now to write a valid job description for the teacher of tomorrow. One thing is certain, his work will be different. Quoting from the editorial in the January issue of *Audio-Visual Instruction*: "We know that the teachers of tomorrow will be utilizing television, using a wider variety of teaching materials (some of which will be organized into a package or learning unit), teaching as a member of a team, working with students in large and small groups and as individuals, using teaching machines and other self-instructional devices, and facing new technological developments requiring an open but critical mind."

A few institutions have incorporated into their teacher education curriculums serious consideration of the use and organization of teaching teams, methods of teaching large groups, of directing small group discussions and of planning and directing individual study; teaching on and with TV; and the like. We have heard of only two Universities, one is in California, that expect by this fall to be offering such courses as "programming individual teaching-learning machines," "designing instructional systems," and "learning

DR. JAMES D. FINN, professor of education, University of Southern California, and president of DAVI, is the author of the most authoritative professional literature on technology and the instructional process. His recent work is mentioned in the article on this page.





TEACHING by machine is not new. This simple device, about the size of Edison's first phonograph, was built by Sidney L. Pressey in 1926. It presented multiple-choice questions on a drum and the student responded by pressing one of four buttons. The machine kept an error count, would not permit the student to proceed until the right button was pressed.

PRESSEY'S FIRST TEACHING MACHINE

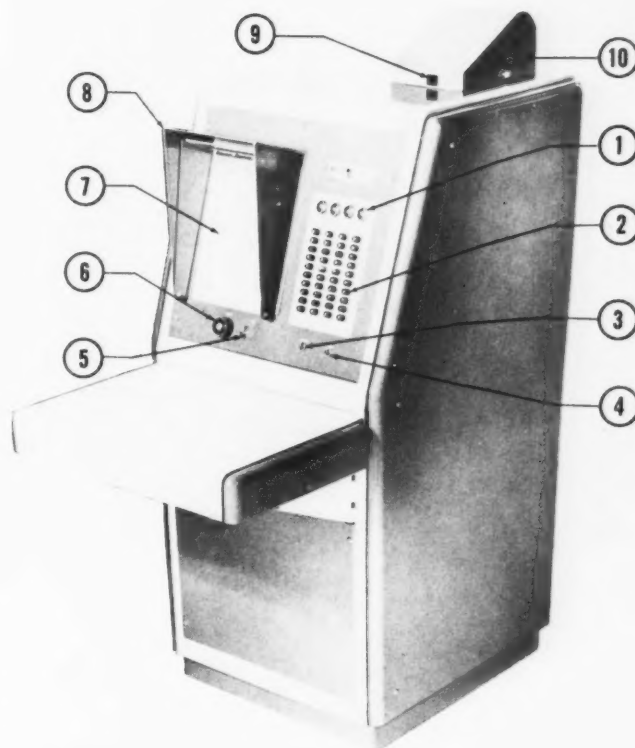
technology." The majority are still doing little if anything to prepare teachers to use even the "older" types of audio-visual tools.

Teachers must be oriented

One very hopeful sign is emerging. The American Association of Colleges for Teacher Education asked the Department of Audio-Visual Instruction to plan one day of its School for Executives program on the topic, "New Techniques of Teaching for the Sixties." At this "School," attended by deans of schools of education and presidents of teachers colleges, attention was given to the two complementary but divergent developments in educational technology, namely in mass instruction and individual or self-instruction, and the implications of these trends for teacher education.

Certainly all teachers today should be given in their pre-service experience, basic information and skills in the use of the materials of instruction including the newer developments such as teaching machines. California teachers have been required for several years to complete a course in AV education for renewal of a teaching certificate. In our opinion it is doubtful that more credit hours can be required at this time. This implies a need for a new look at the present course content and of teaching methods in AV as well as other professional courses, in order to pull out any deadwood and to extend and update the coverage. Several new elective courses are probably in order to meet specialized needs, as well as stepped-up plans for inservice education for teachers with certificates.

The challenge of instructional technology was expressed extremely well by Finn. Writing in the Winter issue of AVCR on "Technology and the Instructional Process" he states, "Whitehead has said that it is the business of the future to be dangerous. Technology certainly has made this aphorism into the outstanding fact of our time. Technology is now making the future of instruction capricious and hazardous. But, in doing so, it has presented us with more opportunity and more choices than ever before. If the future is an adventure, it is an adventure *because* of technology. The cost of civilization is the fact that we can make wrong choices because of the alternatives technology presents. The reward of civilization is the freedom provided by technology and the opportunity to make the right choices. This cost and this reward we now face with the technology of the instructional process." ★★



AUTO-TUTOR, an advanced electronic teaching machine developed by Western Design, a division of U. S. Industries, Inc., Santa Barbara, is about four feet high, two feet wide, and three feet deep. Model 723 contains 10,000 motion picture frames which can be presented in any order. Unit price ranges from \$2,836 to \$4,975, depending on quantity and accessories. In the keyed photograph above, elements are: (1) selector indicator (2) selector buttons (3) motion button (4) view button (5) on-off switch (6) focus control (7) viewing screen (8) hood (9) recorder tape view window (10) recorder tape and take-up mechanism. This machine is illustrated on the cover of this issue.

LANGUAGE LABS:



Mechanical Monsters or Pushbutton Miracles?

By Gustav Mathieu

FOREIGN language teachers are no longer on the defensive. This I discovered in the past year in talking to hundreds of FL teachers in more than 30 California towns from Chula Vista to Sacramento. Nowhere did I meet a FL teacher who felt the need to justify his profession with the Why-One-Should-Study-A-Foreign-Language argument. Instead California FL teachers have gone over to the offensive. Their fighting slogans are "It isn't a language unless you speak it!" and "Give us the tools and we will do the job!"

St. Augustine knew it

Their first war cry sets forth a new objective but the method of learning a language by speaking it is as old as mankind. Mr. Berlitz made millions at it, cashing in, incidentally, where our schools had failed. Call it what you will: aural-oral, oral-aural, audio-lingual, lingual-aural, direct, functional, or if you wish, tongue-ear method. These fancy appellations but proclaim what St. Augustine already knew when he wrote in his *Confessions*: "I have since discovered by observation how I learned to speak. As I heard the same words again and again properly used in different phrases, I came gradually to grasp what they signified; and forcing my mouth to the same sounds, I began to use them to express my own wishes. Thus I learned to convey what I meant to those about me."

Individualized mass instruction

Why then, you will ask, haven't we used this method? This question is best answered by another question: Do we really need language labs to produce the "literally millions" of Americans who should speak a language other than the mother tongue, as wished for by President Eisenhower? Of course we don't! I can think of better methods. Let's send every American youth for a year to the country whose language he wants to speak. Or let's engage for every student a trained private tutor who will spend two hours with him every day.

You and I know that these solutions are pipe dreams. But I also know that next to these chimeric proposals the language lab is to date the most effective tool for teaching foreign languages to *large groups*.

Here are ten reasons why—ten reasons we can now use St. Augustine's method for the millions:

- In the language lab *all* the learners can "force their mouths to the same sounds" at the same time, all the time. In a single lab period Johnny can say *Soy norteamericano* more often than he would in six weeks in a class of 30.
- Since language is learned by "hearing the same words again and again properly used" it follows that every time Johnny hears a mistake he learns a mistake. At one blow the lab eliminates this bad classroom feature. In the lab Johnny

no longer hears the imperfect pronunciation and garbled versions of his classmates.

Boon to teacher

- Once the teacher is "on tape" the machine takes over the mechanical chore of drilling the learner with "different phrases" again and again. And it does so without time-consuming hesitation and without betraying the fatigue and irritation felt by the teacher after going the same round a hundred times a period, five periods a day.
- Every student has a private tutor and an inexhaustible one at that. The machine is ready to work with the learner whenever he wants and for as long as he wants. Just as Johnny goes to the library to study on his own, he can now go to the "tapery," pick the taped lesson he desires, and practice to his heart's content.
- Slow and fast learners get a better break. The fast learner is not hampered by the slow learner. If Johnny is gifted or eager he may progress at his own rate. While the class is still working with taped lesson five, he is practicing lesson six or seven.

In turn the teacher can now help the slower learner without interrupting the rest of the class. Other students can keep on practicing while the teacher aids one student with his pronunciation. Here, incidentally, is one reason why the lab can only function effectively if a fulltime technician is always present. The teacher must remain free to devote his time to supervising his students.

Psychological benefits

- Isolated in his booth, the learner loses his self-consciousness and fear of imitating aloud. The mike into which he speaks will not giggle at him as might his classmates.
- Motivation is increased because the learner obtains immediate results of his efforts. Properly programmed, the lab is more than a "drillmaster" for parrot-like mimicry-memorization. It is a self-teaching device which challenges the learner because the exercises are a continual test. However this test is not designed to test but to teach; immediately after giving his own solution, the student hears the correct response and repeats it.

Learner becomes own critic

- Our colleagues in football have long known the value of filming their players and letting them later watch themselves for self-analysis. FL teachers today also record their students and play back their voices for self-evaluation. As the learner listens to himself, he compares his pronunciation and speech patterns with the immediately preceding model he has imitated. He now can evaluate his performance because he hears himself objectively, that is, he hears himself as others hear him and not with his inner voice distorted by bone conduction. As he listens to himself the learner concentrates on identifying his errors and this is the first step to self-correction.

Dr. Mathieu, former professor of languages at Pomona College, Claremont, is now chairman of the department of foreign languages at Orange County State College, Fullerton.



STUDENTS prepare for language drill in this Dictaphone electronic classroom in action. When the teacher turns on the reproducer on her desk, students may listen to a vocabulary drill she has pre-recorded on plastic records.

• The late Heywood Broun once complained: "I've studied Beginners' French and when I got to Paris I found that nobody there spoke Beginners' French." If Heywood had had the chance to listen to a Parisian cabby on tape he would have fared better. Today's language apprentices hear the voices of men, women, children. Their ears become attuned to many accents and intonations. The day is gone when Johnny will be shocked to discover that no one in Cuba speaks like his Madrid-trained teacher at Lincoln High.

Earwitness to world

• Motivation is also heightened because the lab makes learning an exciting adventure in the life and culture of other peoples. In the lab students can "ear-witness" the life of a French family from *bonjour* to *bonne nuit* enhanced by the authentic sounds of a French telephone, coffee grinder or the *Métro*. They hear the weather report from Radio Luxembourg or the soccer match Hamburg-Berlin (Berlin won 3-4). The tape breaks through the sound barrier of the classroom walls. It brings life to languages because it brings language to life.

But let no one believe that the language lab is a pushbutton miracle that

will make Johnny speak German or Russian overnight. Learning a second language means acquiring new habits and breaking old ones. Hence facility with a foreign language, more than with any other skill, requires countless hours of hard work in which the learner must collaborate with the machine as he collaborates with the teacher and textbook.

Machine as good as program

In order to collaborate successfully, the automated language lesson must be well-programmed. The lab is nothing but a machine: it is only as good as the program the FL teacher puts into it. Unless I am mistaken, teaching machines for math or physics will not be widely installed until they come with complete and correct programs. But language labs are sprouting from coast to coast and it is left to the FL teacher to improvise programs.

To the FL teacher whose training and materials are based on the traditional grammar-translation-reading presentation, the new hearing-speaking-reading progression brings enough problems into the classroom. The writing and recording of a good script for a single lab period, not to mention a se-



U. S. ARMED FORCES were pioneers in the use of electronic equipment for the teaching of foreign languages. Shown here is Cadet Alex Zimmerman of San Diego, a student who ranks at the top of his class at the Air Force Academy in Colorado, reciting into the microphone on the headset, then listening to himself on the tape recording. He can also hear comments from the instructor. Each cadet at the Academy must take ten credit hours of one language, either Russian, German, French, or Spanish.

mester's program that correlates lab and class work, requires know-how, imagination, enthusiasm, and released time. But above all it requires that the teacher unlearn many of the old techniques. He must retrain like a piston plane pilot who wants to fly jets.

Teacher must learn and unlearn

For example, our jet-age FL teacher must learn (and constantly keep in mind) that the machine cannot smile if the student is right or frown if he is wrong. Hence he must devise exercises that shift the task of evaluation to the student himself. He must learn to formulate sparkingly lucid instructions since the machine cannot answer questions or reformulate for clarification. If the student does not understand what he should do, the exercise is lost on him. He will feel helpless and frustrated. He wants to kick the machine.

The space-age FL teacher must jilt old sweethearts like "fill-in" exercises (they nullify audio-learning) and "multiple-choice" exercises with structurally incorrect answers (they implant wrong

speech habits). On the other hand he must fall in love with "audio-forms" because hearing and saying a word must precede seeing it lest the learner be tempted to pronounce the written form in Fractured French or Mangled Saxon. And above all he must espouse St. Augustine's doctrine that languages are "learnt to convey what I meant to those about me."

Everywhere in California I have seen FL teachers eagerly experimenting with St. Augustine's method at in-service workshops and on their own after hours. The lab has revitalized them. They know it opens unlimited possibilities for wedding quantity to quality instruction. But they also know that language labs will not come to full bloom until the art of labmanship and classroom teaching are fused into one craft by specifically designed instructional materials. Then the day will not be far off when we shall all gleefully preside over the burial of the infamous cliché, "I had two years of French and I don't speak a damned word." ★★

Example of Pattern Re-creation Exercise in Spanish

Escucha y repite. Listen and repeat.

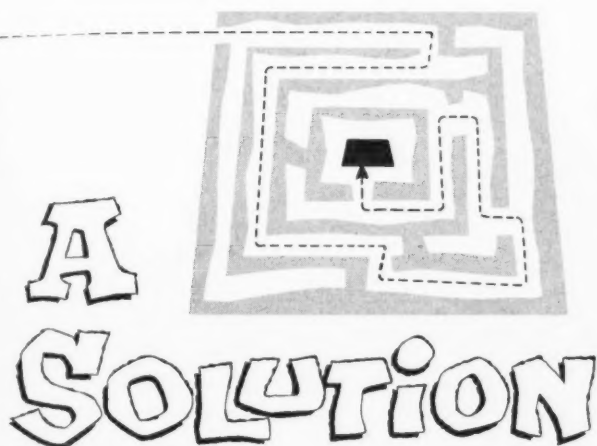
Veo una pluma. (pause) Veo dos plumas. (pause)
Veo un libro. (pause) Veo dos libros. (pause)
Veo una casa. (pause) Veo dos casas. (pause)
Etc.

ahora, hágalo a solas. Digame que ve dos de los objetos siguientes. Now on your own. Say that you see two of the following objects. Say the la respuesta correcta. Repeat the correct response.

"MANUAL FOR FOREIGN LANGUAGE TEACHERS, Suggestions for Teaching by the Audio-Lingual Method," is a 30-page mimeographed booklet published last March by the Bureaus of Secondary Education and the National Defense Education Act Administration, California State Department of Education, Sacramento. Above is a portion of one of the exercises suggested for the teacher to prepare on tape, to be used in laboratory systems.



EACH TAPE DECK on this Webster teaching laboratory transmits a different lesson. This custom installation permits the student to select his own teaching program, the teacher may select for the student, or the student may "teach himself." The panel in the center is a power control and monitoring component. The instructor can listen to student's progress, carry on conversation with him. The manufacturer claims initial cost of this equipment would be about \$25 per student for four classes of 30 students each for the first semester.



to some pressing problems in education

By Robert E. Corrigan

HOW CAN we teach the ever increasing numbers of students with proportionately fewer teachers? How can we teach the ever increasing numbers of courses needed by the student in a jet-air age? These and related questions may be answered by exponents of automated teaching methods.

The word *automated* has been accepted in the vernacular since experimental work on teaching devices has been performed with mechanical or electro-mechanical equipment.

Automated teaching refers to a new method of teaching and learning specifically geared to an individual's learning capacities. It involves new concepts in preparing educational and training materials and in presenting this material through machines. Significantly, it insures that each individual must master the subject matter that he is directed to learn.

Key points in which automated teaching methods differ from conventional methods include (1) the individual is required to be active continuously in the learning process (2) the individual progresses step by step in the learning task, proceeding only at a rate consistent with his demonstrated understanding (3) the individual cannot proceed to more difficult material or different subjects until he has completely mastered all sequential steps required for comprehension and application, and (4) at every step in the learning process he is given immediate knowledge of results, informing him whether he is correct or incorrect, and the reasons why.

Successive understanding of each segment in the lesson before the student goes forward was a basic principle proposed by the pioneers in automated teaching, Pressey and Skinner. This means that errors in understanding or application are corrected immediately before going on to the next step.

Materials to be learned are broken down into many separate steps. The progression of these steps and the information contained in them is carefully planned and written according to special rules. Text book information, when reformed in this manner, is called a "program."

Extensive research has been performed comparing conventional teaching methods with those applying automated teaching principles. In every case, the automated teaching system was shown to be significantly effective in terms of degree of comprehension, speed of learning, and the ability to remember the material taught.

The words "teaching machines" may conjure up in your mind pictures of complex electronic "brains" or computers with wires leading to the student's body, the pulsating of lights, the background hum of electrical equipment, and the hypnotized subject staring into space as the machine "pours" knowledge into him. Nothing could be further from the truth.

Teaching machines are not products of science fiction writers. They grew from the work of qualified psychologists over the past 75 years. The student is not "wired" into the machine, but actively operates the machine as he would a typewriter or adding machine. Teaching machines are not

Dr. Corrigan is president of Corrigan and Associates, Inc., of Garden Grove. He is a pioneer in studies of human factors in ground support and training devices for Douglas Aircraft and American Institute for Research. The article above is an adaptation of a speech he made to the annual meeting of the Audio-Visual Education Association of California at Riverside last October.

complex but are simple in design and operation. They are not massive in size; normally they are no bigger than an average typewriter and will be priced in the same bracket.

Three types of teaching machines developed by Rheem Califone Co. of Hollywood represent different programming philosophies. In one the student is required to recall, construct, and write down the appropriate answer. This principle involves techniques of sentence completion. In another the student is required to recognize the correct or most appropriate answer and to indicate his choice by depressing the desired switch, involving the technique of multiple-choice selection.

The teaching machine is modeled after the tutor rather than the lecturer. Tape recordings, conventional closed circuit television, and motion pictures are attempts to automate the lecture situation. The student plays a passive role. Neither the lecturer nor the student has any positive way to measure progressive understanding. The lecture's one-way communication system may be compared with the active interchange between student and "mechanical instructor" necessary in successful operation of the teaching machine.

The human teacher may say, "These machines will make teaching an automatic, mechanical process. They redefine the role of the teacher to scorekeeper, rather than that of a highly trained professional."

The profession is understaffed, overworked, and underpaid. It cannot attract sufficient numbers of qualified teachers because of competitive salaries in industry. It cannot present course material in a manner to fit each student's

needs because of broad differences in intelligence and capacity of students making up a class. Educational needs of the future predict more of the same frustrating conditions. How can teaching machines help us solve some of these perplexing problems?

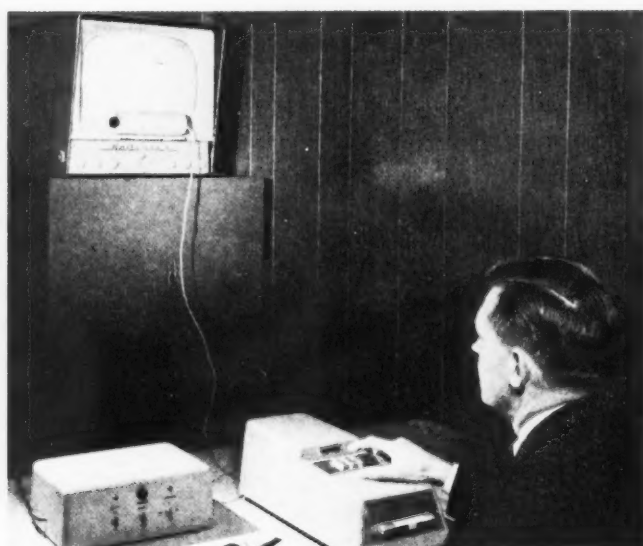
Use of teaching machines enhances the role of the human teacher. The machine provides a method of standardizing important aspects of teaching with continuous attention to each student. Thus the teacher can perform more effectively as guide, director, and molder.

Programming should be standardized by teachers according to specifications of the curriculum. Quality can thus be predetermined and fixed, instruction can be standardized, and each student's progress evaluated.

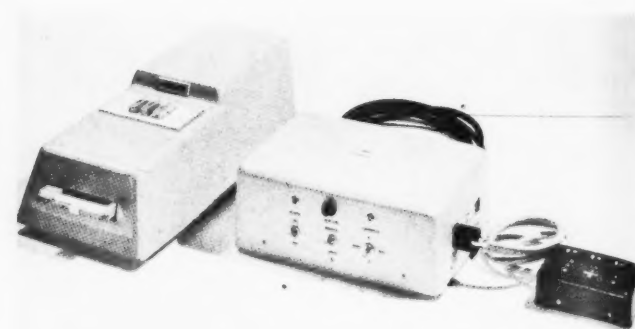
The level of achievement required for each individual student's grade progression may be established according to preset professional standards. The teacher may use objective performance measures.

Time now required by the teacher for preparation of the next day's assignment can be materially reduced, thus freeing him for recreation or professional development.

Briefly, some of the advantages of automated teaching methods include (1) quality control of subject matter (2) continuous student activity (3) immediate correction of errors (4) pacing consistent with student's learning capacity (5) standardization of levels of achievement (6) a bonus of time for the teacher to be applied to individual direction, and (7) continuous testing of the student's progress. ★★



TELETEST Communications, a system developed by the author, combines characteristics of the classroom teaching machine and equipment for instructional television. At right is shown the Record-o-Pak, the power amplifier, and the instructor answer selector console, all used in the classroom. The instructor presents multiple choice or sentence completion questions by means of slides or written forms and selects the correct choice by depressing one of the coded keys (A-B-C on instructor panel at left). When the student depresses one of the keys on his desk unit, he learns of his correct or incorrect response. At



left is shown similar equipment used with television. Coded light signals below the screen are transmitted in conjunction with a normal program. At the same time a signal to the student's desk set indicates to him whether he was right or wrong in his key selections. With Teletest, the television instructor controls the pacing of all TV students from question to question by advancing all Record-o-Paks from the TV station by the flip of a switch. Student responses are entered into IBM cards for rapid and automatic analysis.

"Mr. Brain" Helps In Classroom

By Theo. O. Zschokke

PROBABLY when we read of the new teaching machines we are either amused or repelled, depending on whether we take them lightly or seriously, for we know the absurdity of expecting a machine to replace a human teacher. The intangible elements, the sympathy and intuition that are required for that delicate pupil-teacher relationship in which the best of teaching flowers, can never be mechanized.

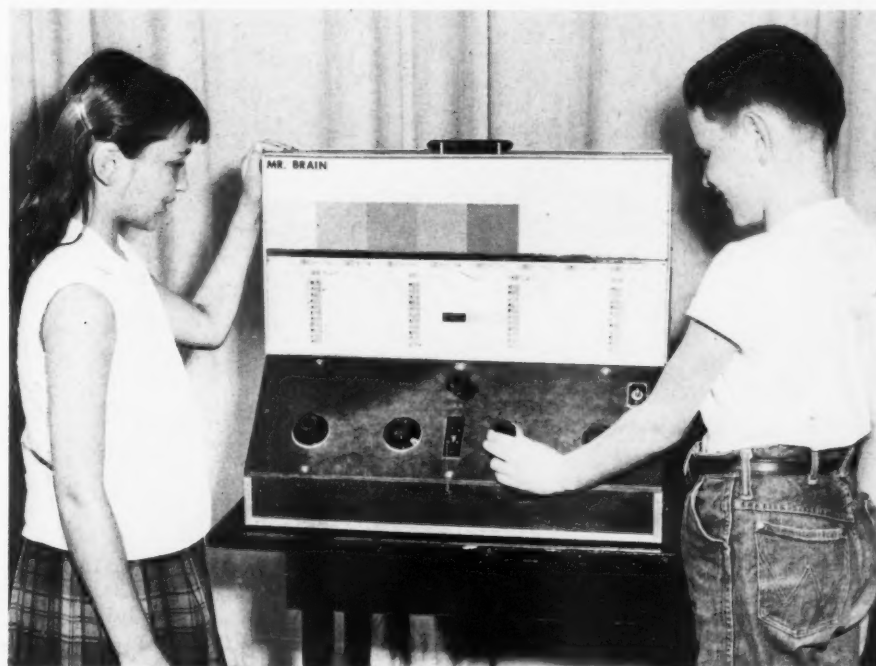
This idea is hardly more than an ill-defined feeling. We live in a mechanized society which often ignores such intangibles. Teachers are judged by this society as being inefficient, as partially failing in their jobs. We are not producing the quantity of learning required by our mechanized age. It is natural that pressure is being brought on us to become more efficient. We only need to look at our standardized texts, the "suggested" means of presenting new concepts, and the aids that are provided for us to see that, by implication, a good teacher is a mechanical teacher.

This is of course overdrawn and absurd, but the fact remains that even a good teacher has little time over and above filling the required quota of learning facts, skills and concepts to do the type of teaching he aspires to do.

Perhaps the answer is not to further mechanize ourselves and further stultify our teaching, but to go one step forward. Mechanize the mechanical aspects of teaching the basics, humanize the rest of teaching. Rather than try to compete with machines, let us use them as we do so successfully in other areas.

This is not an empty dream as there are already in experimental use a whole

Mr. Zschokke (pronounced Shocky), who prefers to call himself a design engineer and inventor, has been a substitute teacher in the Riverside-Perris area for the past three years. He has produced four prototype teaching machines, has ten in design stages, but is not yet manufacturing his equipment. The author's description and his related comments illustrate the broad potential field for teacher experimentation and development of simple "machines" for specific purposes.



Children like to operate "Mr. Brain," the simple electrical teaching device built by the author. The reward lights, indicated in squares of the top panel, respond to the pupils' twirling of dials to find answers to math problems. A thesis, written by a graduating education student at University of California, Riverside, demonstrated that the machine eased the teacher's load, provided motivation for students, and enhanced mastery and recognition.—Photo by Walt Frisbie, Hemet.

series of automated teaching devices that range in scope from simple drill machines to flexible integrated teaching systems.

For several reasons, less is being done at the elementary school level, but "Mr. Brain" is a drill device that has been successfully used in more than 15 different elementary classrooms during the last three years in the Riverside area. This suitcase-sized device, one of several made by the author, combines old teaching and game philosophy with new mechanics and a few pages of text to produce voluntary drill activity in any basic group of facts such as multiplication or the elements of the constitution.

The pupils operate the knobs and switches because they like to do it to see the lights flash. They soon learn that if they make mistakes the machine can beat them. So they desire to learn to perform accurately, and they soon do. Corrected drill is desirable for rapid learning but here is a device that has built-in motivation, that corrects the pupil immediately, that operates at the student's own speed, that has subject matter graduated to the level of the

pupil. And there are no papers to correct.

The first reaction of teachers to "Mr. Brain" is that it is just a gadget for the amusement of the children. After they have seen "Mr. Brain" quietly working in the back of the room with one child after another all through a day, they realize that "Mr. Brain" is adding to the total class learning. After a week of use, they can see that it is actually a new type of teaching. Their reports and the results of a controlled test indicate that the children love to work with "Mr. Brain," it stimulates drill in the basics, that children measurably learn with it, that it corrects persistent errors that otherwise might escape notice, and that it does this at no cost in teacher-time.

This success points the way out of one of our most persistent dilemmas. We can look forward to a time when we will use a series of automated teaching devices to carry much of the load of teaching and drilling the basics. This will free us to give more of the individualized instruction that is so badly needed today. The machines will free us to teach.

★★

California Steps Out With Teaching Machines

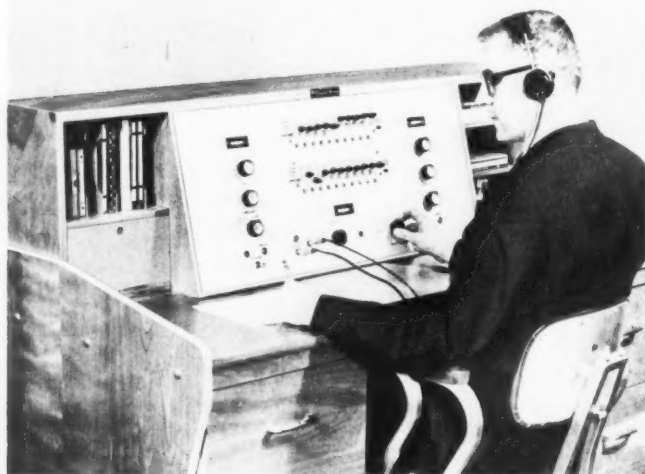
By Edward Fry

This state's industrial leadership in electronics assures early development of classroom aids.

CALIFORNIA is one of the leaders in the new and fast growing field of teaching machines. Both research and commercial development are proceeding at an increasing rate and some observers feel that school use will not be far behind.

Teaching machines are not traditional audio-visual devices such as motion picture projectors or tape recorders. Also not included are tachistoscopes, reading pacers, or IBM test scoring facilities. Rather, teaching machines must meet most of the following criteria:

1. They present a small unit of curriculum to an individual student.
2. The student must actively respond (usually by answering a question).
3. The student is immediately informed as to the correctness of his response (feedback).
4. The student is not permitted to proceed until he correctly responds or at least is informed of the correct response.
5. The curriculum material is very carefully ordered, based on try-outs with similar students.



NERVE CENTER having flexible multi-channel programming and elimination of mass tape duplication are features of the language laboratory system introduced by Educational Equipment Division of Edwards Company, Inc. With tape playback units in drawers, the teacher can program live classes, tape recorded master lessons, outside sound sources and student recitations.

Teaching machines usually use verbal or symbolic stimulus items. Generally, training simulators (like the Link trainer) are not considered teaching machines. Some lan-

guage laboratories do a good job of meeting these criteria and other so-called language laboratories are little more than a phonograph.

Principles make the difference

The important thing about teaching machines is the psychological principles involved, not the hardware. Note the



TWO DIDAK models, developed by Rheem, are adapted to different student levels. The one at left develops associative skills in children before they learn to read. At right is a model for high school or college in which the student writes the missing word in a question in panel at left, then compares it with the correct word in panel at right. Photos courtesy Phi Delta Kappan.

pertinent principles: (1) breaking the curriculum into small easily digestible units (2) requiring student activity (3) frequently rewarding the student by telling him how he is doing (4) insisting on understanding before proceeding to the next step (5) allowing the student to proceed at his own rate. Good teachers try to use most of the sound learning practices but some psychologists feel that, short of an individual tutoring situation, it is next to impossible without automated help.

The George Washington of the teaching machine field is Dr. Sidney Pressey of Ohio State University, who first published a report of a teaching machine in 1926. One of his first devices was about the size of a small portable typewriter. It caused the student to respond to multiple choice questions by pushing keys. The student received a candy "lifesaver" if correct. Later, Pressey and his students began extensive

Dr. Fry is director of the reading clinic, department of education, at Loyola University, Los Angeles. His speeches at audio-visual conferences and his articles in professional journals on teaching machines mark Dr. Fry as a leading authority in this field.

use of punch board type teaching machine devices involving thousands of students and proving the effectiveness of many of the teaching machine principles. Dr. Pressey has just completed a year as visiting professor at the University of California at Los Angeles.

One of the current leaders in the teaching machine field is Professor B. F. Skinner at Harvard. Professor Skinner believes in breaking material into extremely small units, so that the student is frequently rewarded by correct answers. He also believes in having the student construct (write out) his answer rather than select a multiple choice alternative. Some of Dr. Skinner's ideas about using teaching machines are being put into commercially available "hardware" by Rheem-Califone Corporation of Hollywood.

Research in subject fields

Subject matter to be used in teaching machines covers a great variety of material. College subjects from Russian to Old Testament are being programmed at Earlham College in Indiana, under a U. S. Office of Education grant. Some of

Skinner's students have taught elementary subjects such as arithmetic, spelling and pre-reading. Dr. Evan Keisler at UCLA has an interesting programming task of trying to teach molecular theory to first graders. He is working under a contract with Hughes Aircraft.

New subjects seem particularly attracted to teaching machines. Dr. Joseph Rigney and I have been developing a program in Boolean Algebra (useful in digital computers) which has been tried out at Culver City high school and Loyola high school. Drs. John Coulson and Harry Silberman at Systems Development Corporation in Santa Monica are developing a program in symbolic logic to be taught by a computer connected with a typewriter and special slide projector. Previously, they have taught part of a psychology course by a simulated computer-teaching machine to Santa Monica City College students.

Dr. Norman Crowder at Western Design Company in Santa Barbara has helped develop one of the simplest and one of the most complex teaching machines. The simplest

device is called a scrambled book and works by having the student read a bit of information followed by a multiple choice question covering the information. The student responds to the multiple choice question by turning to the page numbered beside his answer choice; there is no conventional page order. His choice, right or wrong, leads him to the next bit of learning that the author has determined that he is ready for (advancement or remediation). The complex device, known as the Western Design Auto-Tutor, is a random access, recording, micro-film and motion picture projector which operates on the same principles as a scrambled book but costs about a thousand times as much (\$4,500).

New machines being tested

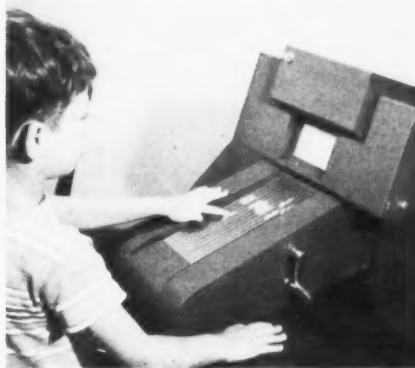
Dr. James Finn of the University of Southern California and the Education Department at San Jose State College will be doing research this fall with one of the newest teaching machine type devices, the Corrigan Teletest System, which combines television instruction with a multiple choice teaching machine. The TV teacher asks a question and the student responds on his home machine or classroom machine; the student gets immediate knowledge of results and, in addition, a report of all responses is made on an IBM card which is mailed into the station for the record. The Teletest was developed by Dr. Robert Corrigan of Garden Grove and the USC System will be used partly by the Anaheim schools during the coming year. The Teletest installations are being sponsored by the California State Department of Education.

Most of the institutions of higher learning in California have at least one

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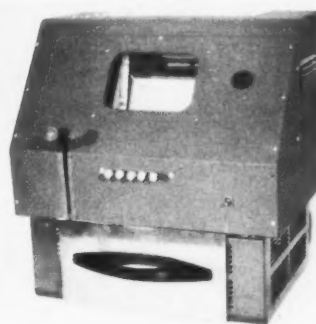
PRESSEY'S PUNCHBOARD, one of the oldest teaching machines, allows the student to respond to a multiple-choice question by punching a particular hole. If the pencil goes deep, the student's choice is correct.



SKINNER'S SLIDER machine shows problems in the window at top. The student constructs an answer by moving sliders. When he turns crank at right—and his sliders are in the right position—the next problem appears in the window.



SKINNER'S DISK MACHINE has two slots in the top. Pupil reads question in left-hand slot, writes answer on paper tape on right. Raising the lever, he gets the correct answer and covers the written answer with glass.



ANOTHER MULTIPLE CHOICE machine, this unit was designed by Instrument Research Co. for experimental work under Dr. Fry at Loyola University. The student reads questions on cards appearing behind the window, answers by pushing a button. If he gets a green light, he is correct.

... But ***THIS***



a machine can ***NOT*** do!

By Donald W. Robinson

JOHNNY walked briskly into the classroom, slipped his time-card into the attendance machine, and took his place at his learning station. Lifting the hood of his Tele-Teacher, he switched the machine to "Teach" and began where he had finished yesterday, at the events leading up to the New Deal.

For fifteen minutes he viewed the video screen, then switched the machine to "Test." On the screen a question appeared, "The economic condition of the country during the first half of 1929 can best be described as: 1. stagnation, 2. deflation, 3. despair, 4. inflation. Johnny pushed the button numbered four and a honeyed voice from the machine rewarded him with, "Congratulations. You are absolutely right. Now let's proceed with further questions. Keep up the good work."

On the fourth question, regarding the function of the Reconstruction Finance Corporation, Johnny hesitated, then pushed button No. 3. A red light appeared and the voice, friendly and even, said, "No, that is not correct. Think for half a minute, then try it again. If you miss it this time you must review this section by pushing button 3-A."

Johnny was learning his history from one of the automatic tutors developed as an experimental model. Pioneer companies and their researchers are working to hasten the day when every student will have his individual reading machine, language earphones, mathematics problem box, and social studies teaching machine.

Although no one can say for sure what all of the effects of teaching machines will be, some of the effects can be predicted, either from experimentation or from common-sense speculation.

In the first place machines will no more "take over" teaching than moving pictures or television have taken over teaching. They will no more replace the teacher than the typewriter has replaced the secretary or the comptometer has replaced the accountant.

Some electronic teaching devices, such as those based on Professor Skinner's principles, are bound to prove a boon to teachers in some classes, by performing parts of the teaching job far better than the teacher can (even if she is a living doll!) and leaving her free to do the other parts of the teaching job more effectively.

At St. Scholastica, a private school in Louisiana, the teacher sits at a control panel while each pupil works at his station with earphones, listening to tape-recorded lessons. Each lesson is taped at four levels of difficulty. When a pupil

has a question, he raises his hand by pushing a button which turns on a red light to attract the teacher's attention. Teacher then plugs in that student on the two-way communication system and talks with him about his problem. Teachers in this school report that many students have advanced two or three years in achievement in one year.

At the New York Institute of Technology students spend one out of every three class hours learning from machines. A teacher is always in the room, moving around from machine to machine, much like a science teacher in the lab, giving advice and assisting those with special problems.

Alexander Schure of the Institute feels that machines will so improve the productivity of the teacher that it will make possible the improvements in salary so badly needed. He reminds us that of all industries in this country, education alone has not increased its productivity since 1900. If machines can teach the basic content and relieve the teacher of the routine clerical drudgery of testing, teaching productivity and salaries can be more than doubled.

Some mechanical and electronic teaching devices accomplish amazing results. They can keep a student's attention (so can TV) better and longer than most teachers can. They provide individualized instruction. They offer immediate recognition when the student provides the right answer, thus reinforcing desired responses immediately and frequently. And they don't have pets and they don't get impatient.

Still we need not fear that these electronic pedagogues will ever become Franksteins to drive the teacher out of the classroom.

As the inventor of one of the more promising mechanical teachers says of his brainchild, "Though Tutor will never supplant the human teacher, it has certain basic psychological advantages over him, or her. For one thing, the student need never feel ashamed in its presence. People hate to seem inferior. Many shy students hesitate to stand up in class and hazard questions or answers that may make them look foolish. The Tutor-student relationship is confidential and reassuring. Tutor strengthens a student's reasoning powers by the exercise of infinite tact and patience. It never grows tired or annoyed, never makes fun of anyone, or hurries anyone along for the sake of the rest of the group. It is inhumanly knowledgeable, but also inhumanly kind."

The Brave New World of the classroom will always include a teacher, not only to feed information into the machine and teach the child how to use the machine, but to make him want to use it. Teachers will be necessary to answer questions that cannot be fed into electronic circuits, to teach the student to communicate what he has learned, and

Dr. Robinson, a regular Journal contributor, is a social studies teacher at Carlmont high school, Belmont.

to analyze and relate what he has learned and give it human value.

One of the leading developers of mechanical instruction devices admits that history, literature, and the humanities don't lend themselves readily to the automated process, while others claim that the most subtle and complex ideas, such as the causes of the Civil War, can be as readily fed into a teaching box as into a book. The printed book has long been accepted as a valid tool, so why not the talking, testing book? Teachers will no more be replaced by electronic devices than they are currently replaced by textbooks and films.

One of the primary tasks of the teacher is to stir the imagination and the curiosity of the student; not to satisfy the curiosity, but to whet it. Creative curiosity can probably not be whetted by a machine with a single set of data wired into it. Good teaching requires that ideas be presented differently to different pupils. When a child fails to respond the effective teacher does not repeat the same explanation the same way.

Fabulous though the machines may be, they cannot transcend the learning level, which is merely laying the foundation for a true education. Ingenious though the electronic devices are, they must defer to the live teacher in providing experience in applying the facts and ideas which have been "learned."

Students must do things with the facts and ideas before the learning is complete. They must write papers, give talks, perform experiments, compare ideas through conversation,

ELECTRONIC INSTRUMENTS help the California Test Bureau, in its new national headquarters building at Del Monte Research Park, Monterey, to complete diagnostic analysis of academic test results for school children. Shown is the IBM 9902 electronic scoring punch which was demonstrated at the Bureau's training conference in June. Not a teaching machine, this equipment illustrates the new broad application of electronics to educational administration.



CRASH DRILLS in driver training classes are made possible by the Aetna Drivotrainer installation shown above. The distributor, Roger Wurtz Co. of San Rafael, says the equipment is now in use in 25 California classrooms, including two state colleges, and two Naval training centers, where it replaces half the time ordinarily spent behind-the-wheel in driver training. Fifteen students at a time can use the units with a projected motion picture, teaching them how to get out of common highway emergencies like the one shown.

and ask questions to help relate the new information to things already known. Someone must plan and supervise and evaluate these activities, someone more knowledgeable, more flexible, and more human than the most sophisticated mechanical marvel.

Machines will make a tremendous contribution if they save us basic learning time which the teacher can then devote to perfecting skills in applying and relating this knowledge.

Paradoxically the very teaching machine that offers individualized instruction at the fact-learning level denies individualization at the same time. For how can we call that instruction individualized which is mechanically wired into the machine, the same information, presented the same way, for every child?

The role of the teacher that cannot be played by any combination of screens and coils and relay circuits ingeniously contrived by man is clearly defined by the master teacher.

Jacques Barzun was not thinking of the automated classroom when he wrote these words, but they apply; "You know by instinct that it is impossible to 'teach' democracy or citizenship or a happy married life. I do not say that these virtues and benefits are not somehow connected with good teaching. They are, but they occur as by-products. They come, not from a course, but from a teacher; not from a curriculum, but from a human soul." Could they possibly come from a machine, or from a long dreary series of machines?

Gilbert Highet wrote "The Art of Teaching" before the Tutor, the Tele-Teacher, and the automated classroom had been hatched, but his explanatory preface reads as if it were aimed directly at these robot teachers: "Teaching involves emotions, which cannot be systematically appraised and employed, and human values, which are quite outside the grasp of science. A 'scientifically' brought-up child would be a pitiable monster. A 'scientific' friendship would be as cold as a chess problem. 'Scientific' teaching, even of scientific subjects, will be inadequate as long as both teachers and pupils are human beings. Teaching is not like inducing a chemical reaction: it is much more like painting a picture or making a piece of music, or on a lower level like planting a garden or writing a friendly letter. You must throw your heart into it, you must realize that it cannot all be done by formulas, or you will spoil your work, and your pupils, and yourself."

When Evan Kiesler of UCLA was quoted as saying, "I hope that there will always be human warmth and understanding available for the tots in the lower grades" he probably did not mean to deny the importance of some human warmth for the tots in the upper grades, too. All along the way that human warmth can spell the difference between training and education.

Bertrand Russell was saying very much the same thing when he wrote in *Harper's* in 1940, "No man can be a good teacher unless he has feelings of warm affection toward his pupils and a genuine desire to impart to them what he himself believes to be of value."

What machine can have feelings of warm affection toward its pupils or a genuine desire to impart what it believes to be of value? These things must be left for the live teacher. If he fails to provide these human qualities, then, and only then, the machine may take over. But then it won't matter.

Until that day comes young people will continue to look to their elders, and especially to their parents and teachers, for example, for a model, for someone whose footsteps they can confidently follow to learn how to live. ★★

Federal Bill for Construction Seen This Year

*School bill before
Congress becomes
major political
issue this Fall.*



BI-PARTISAN SUPPORT as typified by California's two senators, made possible the passage of legislation in the Senate providing federal funds for construction and teachers' salaries. Republican Senator Thomas H. Kuchel, right, and Democratic Senator Claire Engle joined in voting for S 8, the McNamara bill which called for \$1.8 billion to be used over a two-year period at the discretion of the states for the two purposes. When the legislation later was stalled by action of the House Rules Committee, Senator Kuchel, who is Republican whip, declared "It will be a tragedy if this Congress fails to approve an aid to education bill."

WILL CONGRESS vote federal funds for education this year? That was the billion dollar question that hung in the balance in mid-August as the two houses returned to Washington

McKAY ON LEGISLATIVE COMMISSION

ROBERT E. McKAY, author of the article above and Governmental Relations Executive of the California Teachers Association, has been appointed to a three-year term on the Legislative Commission of the National Education Association. He was named by the NEA Executive Committee meeting in Los Angeles on July 2.

The nine-member commission, headed by Everett Keith, executive secretary of the Missouri State Teachers Association, is responsible for the NEA's legislative program and for direction of its efforts in Congress.

As a member of the Commission, Mr. McKay was designated as the NEA's official representative at the Democratic and Republican National Conventions. He presented formal statements at the Los Angeles and Chicago meetings of the Platform Committees of the two parties, detailing the NEA's advocacy of a broad program of federal support of education, without federal control or intervention.

Named to the commission at the same time as Mr. McKay were Martin Essex, Akron, Ohio, superintendent of schools and past president of the American Association of School Administrators, and Mrs. Ruth Chandler, a classroom teacher, of Idaho.

following a six-weeks recess during which members flexed their political muscles at party conventions and got ready for a November date with the voters.

Best guess was that a bill providing federal support, probably for school construction only, would pass and be signed by the President despite earlier indications that any such bill would be killed by an Eisenhower veto.

Most practical reason for the prediction was that federal support for schools has become an important political consideration and will be a major issue in the Fall campaign.

Both houses had passed differing versions of a support bill before Congress recessed on July 1. The Senate had OK'd a bill giving \$1.8 billion to be used over a two-year period for construction or teachers' salaries at the discretion of the states. The House had passed a \$1.3 billion bill to finance construction only over a four-year period.

Possible resolution of the differences in the two measures before the recess was prevented by the surprising refusal of the House Rules Committee to permit appointment of a conference committee to work out an agreement with the Senate.

This, Senator Thomas H. Kuchel, of California declared, was an "affront" to the House and Senate, and if allowed to stand a "shocking and shameful blow" will have been dealt to education.

With both houses on record as favoring federal support and with the already strong support of the Democratic Party

reaffirmed in the new platform adopted at the Los Angeles convention, the only question mark that appeared was the attitude of the Republican Administration.

Conservative Republicans, in opposing the legislation, had insisted that the President would veto any bill providing federal support for education. The White House, however, significantly did not include the school bill in the list of those which it said would be killed by Eisenhower.

Key figure in recent developments was Vice President Richard M. Nixon. His attitude and actions before and during the Republican convention pointed towards passage of a construction bill. At Chicago he announced that he favored such a bill, but was opposed to use of federal money to pay teachers' salaries. Even before that he was known to be working behind the scenes to get the House Rules Committee to reverse its decision and to permit appointment of a conference committee on the legislation.

The Republican platform that emerged at Chicago called for construction aid, but opposed money for salaries because, it was declared, federal control would result.

Another reason for believing that agreement would be reached on a construction bill was that the House-approved measure was almost identical to the one which the President had proposed to Congress in 1957 before anti-federal support influences in the Administration had caused him to cool in his ardor for such legislation.

The Senate bill, S 8, authored by Senator McNamara of Michigan, passed the upper house last February 4 by a vote of 51 to 34. On the basis of an allotment of \$20 to each child between ages 5 and 17 it called for the distribution of \$917 million in each of two years to the states, with the money to be used for construction or salaries at the discretion of the states, depending upon their needs. It requires that after the first year the federal allotment be matched either by state or local funds.

It was on a 44-44 tie vote in the Senate on an amendment to double the amount of the allotment that Vice President Nixon cast his widely discussed "No" vote to kill the proposal. It was only the seventh time in seven years that he had been called on to break a tie in the Senate.

The House version, HR 10128, introduced by Representative Frank Thompson of New Jersey, was passed by the lower house on May 26 by a vote of 206 to 189. It would provide \$325 million each year for four years for school construction. It called for matching of the federal money from state or local sources the first two years and from state sources only during the third and fourth years of the program.

A proposed amendment to make the funds available on a freedom-of-choice basis for either salaries or construction, similar to the Senate version, was ruled not germane to the bill, with the result that the House had no opportunity to express itself on that issue. It was believed a majority of members favored the amendment.

Written into the House bill, however, was a new version of the so-called Powell amendment, an anti-segregation provision which caused the defeat of school aid bills in 1956 and 1957. It simply stated that school facilities constructed under the aid program shall be available to students without regard to race, color, creed, national origin or religion in accordance with the decisions of the United States Supreme Court.

Offered by Representative Adam Clayton Powell of New York, the amendment had in the past been used as a means of killing the legislation. Republican and other opponents had teamed up with Southern representatives to place the

amendment in the bill, then to oppose the measure as unacceptable. This time the move failed and the bill passed.

The presence of the Powell amendment, however, made the Thompson bill unacceptable to the Senate where the unlimited debate or filibuster rule would be used by Southerners to talk the bill to death.

This fact has led observers to believe that a compromise probably would be reached in a conference committee of the two houses, with the Senate members insisting that the Powell amendment be stricken and key House members holding out for removal of the provision for use of funds for teachers' salaries.

If a construction bill along the lines of the Thompson measure, with its \$7.25 per child, is enacted, California would receive an estimated \$26,912,000 during the first year of the operation of the bill. The amount would increase each of the four years as the number of children of school age in the state increased.

The Senate bill passed with 42 Democrats and 9 Republicans in support, and 23 Republicans and 11 Democrats in opposition.

In the House the Thompson bill was approved with 162 Democrats and 44 Republicans voting Aye and 97 Democrats and 92 Republicans voting No.

Both of California's Senators, Republican Thomas H. Kuchel and Democrat Claire Engle supported the Senate measure.

Only ten of California's 30 Congressmen were recorded in opposition to the proposal, all of them Republicans.

All of the Democratic members from California, except Representative Harry Sheppard of San Bernardino County, who was absent, were recorded as voting in favor of the bill. Sheppard, a strong advocate of federal support for schools, was in California at the time of the vote.

Four California Republicans voted for the Thompson bill. They are Representatives John Baldwin of Contra Costa county, Charles Gubser of Santa Clara county, Craig Hosmer of Long Beach and William Mailliard of San Francisco.

Here is the roll call of California congressmen on final passage of HR 10128:

YEA—Baldwin, Cohelan, Doyle, Gubser, Hagen, Hollifield, Hosmer, Johnson, Kasem, King, McFall, Mailliard, Clem Miller, George P. Miller, Moss, Roosevelt, Saund, Shelley, Sisk.

NAY—Heistand, Holt, Jackson, Lipscomb, McDonough, Smith, Teague, Utt, Wilson, Younger.

ABSENT—Sheppard.

Republican Heistand typified the opposition to the school aid legislation when in testimony before the House Rules Committee he declared that it was "a ridiculous bill, unworthy of consideration," for which no need had been shown.

The California Teachers Association, along with the NEA, is in strong support of a freedom-of-choice type bill under which substantial federal support could be used by the states to meet the needs for construction or salary as determined by the states. CTA's backing of the legislation is contingent upon retention of provisions written into both bills specifically preventing any federal control or interference in any educational matters within the states.

—ROBERT E. MCKAY

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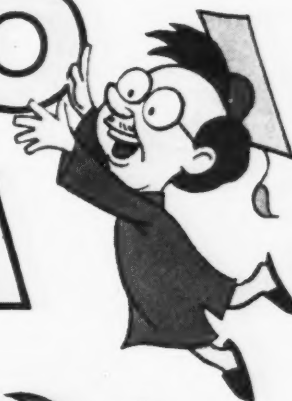
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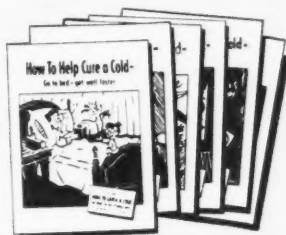


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Dr. Corey's

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Cordially yours,

Arthur F. Corey
State Executive Secretary

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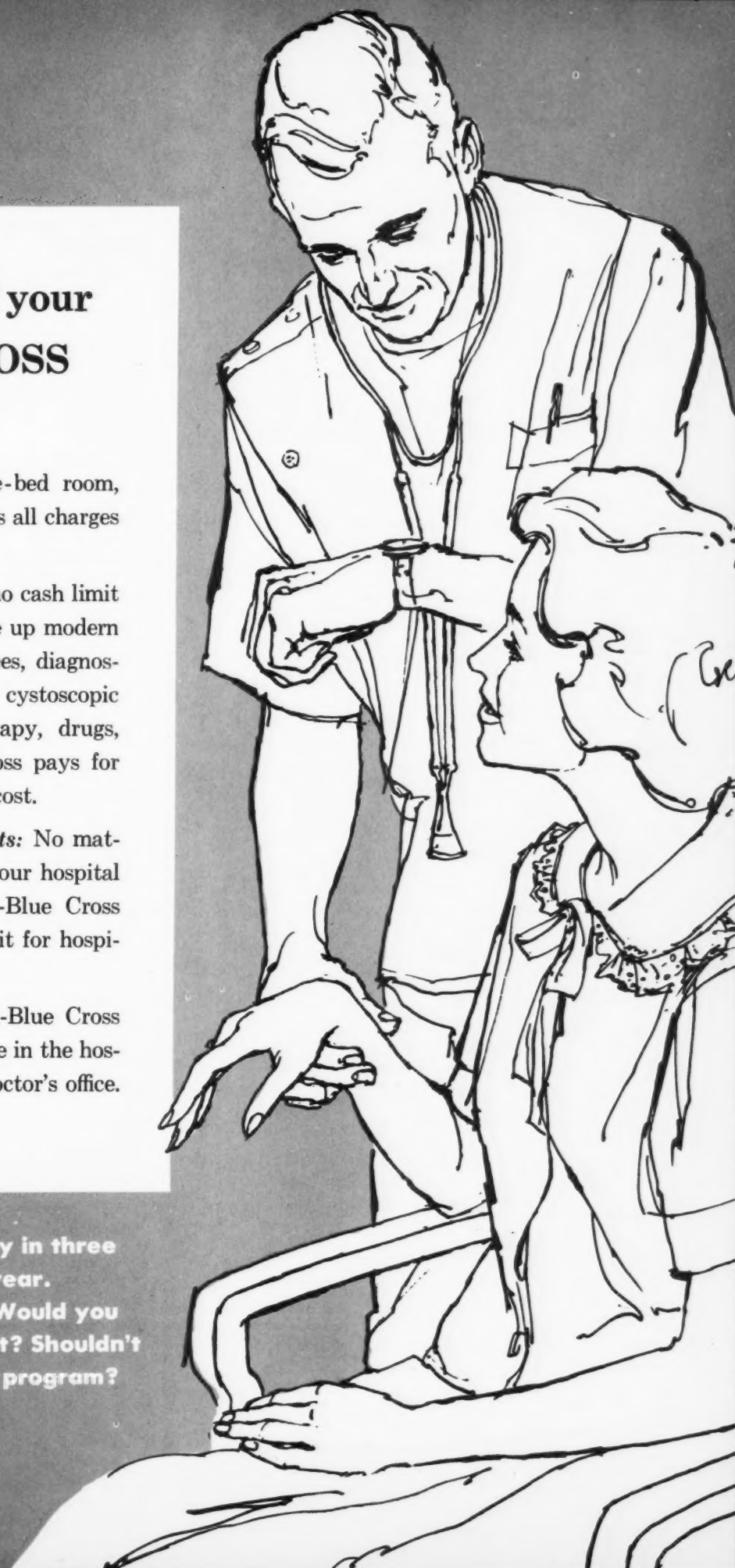
Your hospital room: In a three-bed room, CTA-Blue Cross completely covers all charges for your room and meals.

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NEWS....

(Continued from page 2)

RECENT CHANGES in personnel include: Dr. Alfred C. Ingersoll, on the faculty at Cal Tech for the past ten years, became dean of USC's School of Engineering. Bruce Findlay, associate superintendent of Los Angeles City schools, retired May 1, remembered as the brilliant educator-writer who produced "Your Rugged Constitution," which won the Freedoms Foundation award in 1951. L. W. Ripple, Kern county teacher at Edison school and former member of Central Section board and State Council, retired this summer after 37 years of teaching.

NOVEMBER 5 is the date set for dedication and a mammoth community celebration at the historic Columbia schoolhouse. Next month's *Journal* will announce the program and describe CTA's five-year campaign to reconstruct the red brick memorial.

CALIFORNIA STUDENTS took 123 awards in Ford Motor's Industrial Awards competition in 1959, ranking first among the states in cash awards for the eighth year. Pennsylvania ranked second with 75 awards.

J. BURTON VASCHE, associate superintendent of public instruction for the past eight years, became in May the first president of Stanislaus State College, the 15th college in the state system.

DR. WILLIS A. SUTTON, 80, former NEA president and superintendent of Atlanta schools for 22 years, died July 28 at Atlanta. He had served for many years as a member of the Educational Policies Commission of NEA-AASA.

HANS J. REINES, principal-teacher at Hamilton City elementary school for 40 years, retired in June—with a record of never having a day's absence from duty.

ENROLLMENT PROJECTIONS for 1970 in California schools by the State Department of Finance will require facilities for 5,417,900 pupils, an increase of 2,276,200 over the current figure. Passage of Proposition 2 on June primary ballot (with a 71.4% yes vote) again secured the state's financial obligation on school construction.

TEACHING MACHINES AND PROGRAMMED LEARNING: A SOURCE BOOK by Arthur A. Lumsdaine and Robert Glaser, editors. Washington, D.C., Dept. of A/V Instruction, NEA. October, 1960. Pp. 736, \$7.50.

"Will machines replace the teacher?"

This emotion-charged question, raised by Prof. B. F. Skinner of Harvard in 1958, is a key reason for every educator to read and think about the materials in this excellent book. The editors have skillfully selected key articles and studies to provide an historical, yet up-to-the-minute treatment. In addition, they have summarized the materials in easy-to-read prefaces to each section.

The book tends to emphasize the importance of the planned program of learning which can

take place when teaching machines are used properly by teachers. The machines themselves are described as labor-saving, audio-visual, mechanical devices which can free teachers for a more challenging role in the classroom.

Another publication from NEA Department of A/V Instruction, published several months prior to the above book and designed for use with it, is **TEACHING MACHINES: AN ANNOTATED BIBLIOGRAPHY**. Published as a supplement to the journal, *Audio-Visual Communication Review*, the bibliography is the most complete work on its subject available to date. Material was originally supplied for the Office of Naval Research by the Electronics Personnel Research Group, Department of Psychology, USC. 80 pp., \$1.50.

—FRED F. HARCLEROD, Alameda State College, Hayward

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LINKING KQED AND KVIE in a non-commercial television network, the Ford Foundation has granted funds for October installation of a microwave relay unit to combine the San Francisco and Sacramento independent community-owned stations. Extension of the network service is expected to provide adult education programming throughout the state. Improved instructional television in classrooms will also be possible.

DR. CATHERINE J. ROBBINS, who became president of Pasadena City College in May 1959, was named 1959 *Times* Woman of the Year. She had taught on the same campus for 36 years. Also honored for her work with public education was the late Assemblywoman Dorothy Donahoe of Bakersfield.

MRS. RACHEL McCRARY, 78, native Californian who taught in one-room schools most of her life, became principal of Manton joint school district (Tehama and Shasta counties) this month.

ARTHUR F. COREY was keynote speaker ("Leadership In A Free Society") at the 61st annual convention of California Congress of Parents and Teachers May 4-6 in San Francisco.

LLOYD E. BEVANS, former coordinator for the State Central Committee for Social Studies with the State Department of Education, became professor of education at Stanislaus State College this month.

SEPTEMBER 15 is final registration date for voters in the November 8 general election. In addition to the presidential vote, 30 California Congressmen, 20 members of the State Senate, and 80 Assemblymen will be elected.

SCHOLASTIC achievement, presentation of awards to 100 top students of intermediate and high schools, and an address by Gov. Edmund G. Brown were features of Top One Hundred banquet May 12 at La Habra.

SAN DIEGO Teachers Association, 4470 Park Blvd., San Diego, is accepting applications for position of executive secretary until October 15. Statement of conditions, qualifications, and duties is available. SDTA, 3700 members at all levels, has dues at \$15 a year. ★★



BUSINESS SESSIONS of the 98th annual NEA Delegate Assembly were held in the Shrine Auditorium. This view shows the packed hall during one of the speeches. During debate, delegates used microphones stationed at ten positions on main floor and balconies. In insert at left is shown a portion of the California delegation, which was located in the top rows of the balcony. In foreground is CTA President John Palmer, NEA directors Hazel Blanchard and Jennie Sessions.

NEA . . .

(Continued from page 4)

plans had been developed prior to the August 25 meeting of the NEA Relations Commission to sponsor additional effort toward revision. He added that the management study recently completed by the NEA had tended to encourage changes in operation which might have been accomplished by the proposed amendment.

A comprehensive inventory of space-age changes in the nation's schools, a two-year project to be undertaken by the NEA, will test the adequacy of school programs and make recommendations for further developments. Named director of the project was Ole Sand, head of the department of elementary education at Wayne State University, Detroit. Executive Secretary William C. Carr, in announcing the project, said a 16-member committee would be set up headed by Melwin W. Barnes of Oklahoma City. He said the committee would hope to "define and state the views of the organized profession concerning the instructional program of the public elementary and secondary schools."

In his annual report, Dr. Carr showed that the NEA had established an all-time record membership during 1959-60 of 713,994 and he described the new



EWALD TURNER, newly elected president-elect of the NEA, is a classroom teacher from Pendleton, Oregon. The westerner is well known to Californians, as he served two years ago as president of the NEA Department of Classroom Teachers. He will take over the gavel from Miss Clarice Kline of Waukesha, Wis., at next year's convention in Atlantic City, New Jersey.

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Thursdays

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Fridays

CAVALCADE OF CALIFORNIA (Grades 4-8)



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This manual has been expressly designed to correlate lesson plans wherever possible. Please direct all requests for manuals and inquiries regarding these programs to the Education Department, McClatchy Broadcasting Company, Sacramento 4, California.

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goals as "a million or more by '64."

He announced that a greatly expanded public information service would be launched this year, chiefly through "The School Story," a television series. He said all mass media had increased coverage of public education in recent months.

Two new affiliates were accepted by the Delegate Assembly, adding two departments to the NEA's present list of 30—the American Association of School Librarians and the American Driver Education Association. Delegates also created a new Joint Committee of the NEA and the American Textbook Publishers Association.

A long-discussed proposal to provide a group voluntary life insurance plan for teachers, to be sponsored by the NEA, was approved by a vote of 3762 to 1004.

Proposed for action by the NEA convention at Atlantic City next year was a membership rule which would require active members of NEA to hold either an earned bachelor's or higher degree, or a regular legal certificate, excluding emergency sub-standard certificates or permits, to go into effect in 1963-64.

A resolution offered to the Delegate Assembly providing for endorsement of negotiation by teachers with their governing boards was watered down during extended debate. Following this action, the Board of Directors authorized the NEA president to prepare a revised resolution for action when the Board meets in October.

Named to the board of trustees was John Lester Buford of Mt. Vernon, Ill., former NEA president.

NEA Department of Classroom Teachers, holding its meeting during the convention, elected Miss Anita Ruffing, eighth grade English teacher of Bellevue, Ohio, as its president-elect. Mrs. Buena Stolberg, social studies teacher of Webster Grove, Mo., was installed as DCT president July 5 during the Department's meeting July 2-16 in Hawaii.

At the final session of the convention, Miss Pauline Frederick, United Nations correspondent and commentator for the National Broadcasting Company, outlined bold new programs for United States leadership toward true world peace.

Suggesting concrete proposals to be negotiated by the UN, she pointed out the irrationality of the current "deterrent" race for armaments. She said we should offer a disarmament plan that has elements "it is reasonable to believe might be accepted."

Among the most constructive values of the NEA meeting were specialized meetings held during the week in many downtown hotels. Stimulating speakers, expert panels, and graphic demonstrations were found in the scheduled meetings of 25 NEA departments, 20 committees, and five commissions. Samples were: showing of "Every Teacher—An Active Political Citizen," a premiere of a new filmstrip by the Citizenship Committee; a discussion of how to get a single code of ethics for the teaching profession by the committee on Professional Ethics; and a report on the Educational Policies Commission's study of "The Controlling Purposes of American Education." ★★



MOVIE STAR JEFF CHANDLER, right, was a speaker at a luncheon meeting of the Department of Audio-Visual Instruction during the NEA convention. DAVI President James D. Finn of USC (whose work with teaching machines is described in this issue) is shown consulting with Mrs. Ernestine Brunner, president of the Audio-Visual Association of California and director of A/V for San Bernardino. Mr. Chandler, currently interested in a film about a man teacher, spoke on the impact of Hollywood on education.

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CALENDAR of coming events

SEPTEMBER

- 10- —Salary Schedule and Trends and Legislative Committees, Burlingame
- 15- —CASA Section VI meeting; Berkeley
- 16-18- —Northern Section leadership conference; Brockway Hot Springs, Lake Tahoe
- 17- —North Coast Section presidents; Eureka
- 22- —CASSA executive board; Sacramento
- 23- —Bay Section board of directors; Burlingame
- 23-24- —CESAA executive board, Rickey's, Palo Alto
- 23-24- —CASSA representative council; Sacramento
- 23-25- —Southern Section leadership conference; Camp Seeley
- 24- —Central Section advisory committee, Fresno (afternoon); workshop for committee chairmen (evening)
- 24- —Bay Section membership workshop; Burlingame
- 24- —California Council for Adult Education, Coast Section conference; Garden Motel, Salinas
- 26- —Section Secretaries, Burlingame
- 28- —CASA board of governors and APC meeting; Sacramento
- 30-Oct. 1- —Central Coast Section leadership conference; Burlingame

OCTOBER

- 1- —Central Section workshop for committee chairmen; Bakersfield
- 1- —Retirement sub-committee on handbook, Burlingame
- 1- —Bay Section Council, Burlingame
- 1- —Northern Section and Dep't. of Classroom Teachers joint Better Teaching Conference; Chico State College, Chico
- 5- —CASSA Public Relations Committee meeting; San Diego
- 6- —CASA Section II; Apple Valley
- 7- —Commission on Educational Policy, Burlingame
- 7-8- —Student-CTA Advisory Panel and conference of leaders; Burlingame
- 7-8- —CESAA Central Coast Section; Monterey
- 7-9- —North Coast Section leadership conference; Redway
- 8- —Northern Section chapter committee chairmen; Orland
- 8- —Central Section Council; Fresno
- 8- —Southern Section Council; Los Angeles
- 15- —California Scholarship Federation annual state advisor's meeting; Statler Hotel, Los Angeles
- 15- —Northern Section chapter committee chairmen; Redding
- 15- —CESAA North Coast section; Crescent City
- 15- —California Assn. for Childhood Education state executive board; Bakersfield
- 15- —Committee on Fin. Publ. Educ., Int. Rel., Moral and Spir. Values, Prof. Rts. and Resp., Teacher Ed., Burlingame

CTA Income Protection Plan Is Liberalized

AN IMPORTANT liberalization in the CTA Income Protection Plan is announced by the CTA Advisory Panel on Insurance. The Washington National, underwriters of the Plan, have agreed to expand the schedule of benefits by addition of another benefit classification effective October 1.

Under the new schedule, those having 120 days of sick leave will be paid benefits of \$20 per school day for each day of disability following termination of sick leave. This new \$20 maximum benefit payment will begin on the first school day following termination of regular sick leave paid by the district and continues for as long as two years for each accident or illness disability.

The Plan insures CTA members against loss of income during periods of total disability. It pays benefits when an insured member is unable to work because of sickness or accident. Its purpose is to assure a steady income while disabled. Benefits range from \$10 to \$20 per day, depending on amount of sick leave accumulated. Premium cost is \$1.50 per month (on 12-deduction plan).

A "school day" means a day when school is in regular session. Saturday, Sunday, school holidays or vacation periods are not covered and, of course, regular medical attention is required.

Since inception of the CTA Income Protection Plan in 1955, over half of the chartered chapters have elected to make this service available to members and have added their endorsement to the program. The fact that now over 30,000 CTA members are enrolled is indication of the enthusiastic acceptance of the CTA Income Protection Plan.

Washington National has agreed to declare an "open enrollment period" during the month of October again this year. During this "open period," any uninsured CTA member in a chapter which sponsors the Plan may enroll without furnishing evidence of insurability, providing he or she is actively on duty on the date of enrollment.

Plans for installation of the CTA Income Protection Plan in several previously uninsured Chapters are now under way and it is expected that the list of local chapters endorsing this CTA service will grow substantially again this year.

NOW... BETTER THAN EVER!



Your CTA Income Protection Plan LIBERALIZED

MAXIMUM DAILY BENEFITS INCREASED FROM **\$15.00 to 20.00!**

Effective OCTOBER 1, 1960 an additional classification will be added to the schedule of disability benefits under the CTA INCOME PROTECTION PLAN at no additional cost to insured members.

If, when you become disabled, your accumulated sick leave is:

Less than 15 days
15 to 24 days
25 to 34 days
35 to 44 days
45 days to 119 days

Upon termination of regular sick leave, you will receive Daily Benefits for each school day that you are disabled, of:

\$10.00 per school day
11.00 per school day
12.00 per school day
13.00 per school day
15.00 per school day

120 days and over

\$20.00 per school day

SPECIAL ENROLLMENT CONCESSION!

A special "open enrollment period" will be conducted during the month of October 1960. Any uninsured CTA member in sponsoring chartered Chapters may enroll in the CTA Income Protection Plan during this period if actively on duty on date of enrollment. Look for enrollment material on your school bulletin board. Enrollment cards must be received by the Company prior to October 31, 1960.

If your Chapter is not participating in this CTA service, ask your Chapter president to contact the nearest field office for information.

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NATIONAL PARENT-TEACHER, monthly magazine of the National Congress of Parents and Teachers, won one of the 35 School Bell Awards presented during the NEA convention. Mrs. Eva Grant, left, editor of NP-T, is shown accepting the walnut-based bronze medallion from Clayton E. Rose of Albany, N.Y., president of the National School Public Relations Association. Mrs. James C. Parker, right, president of NCPT, examines the citation.

"Why, Teacher?" TV Series Wins Top School Bell Award at NEA

"WHY, TEACHER?", the 13-week series of half-hour television programs produced in cooperation with the California Teachers Association and carried by 20 California TV stations, won for Station KRON-TV, San Francisco, one of the School Bell Awards presented at NEA convention.

Thirty-five winners in the fields of publishing and broadcasting received awards at the June 28 session "for distinguished service in the interpretation of education."

Clayton E. Rose, president of the National School Public Relations Association, made the presentations on behalf of the seven sponsoring organizations. NSPRA is the coordinating agency for the annual presentations.

On the national level, five awards were presented in the press category:

United Press International—for its weekly feature on education, written by Louis Cassels, education editor.

The Providence Sunday Journal—for its education page edited by James K. Sunshine.

Parade—for nine articles on education published during the year.

The New York Times—for more than a score of editorials and columns on its editorial page, published during the year.

Charles M. Schulz—creator of "Peanuts," for his series on the teacher published in October and distributed by United Features Syndicate, Inc.

Ten of the awards went to national magazines, as follows:

Look—for continuous coverage by a weekly or bi-weekly.

Newsweek—for distinguished coverage in a single article, a special report, "The Good

American Teen-Ager," by Sheward Hagerty, education editor.

The Saturday Evening Post—for distinguished coverage in a single article, "Men and Capital," by John Kenneth Galbraith.

The Atlantic—for distinguished continuous coverage by a monthly.

National Parent-Teacher—for distinguished continuous coverage. (The National Congress of Parents and Teachers, one of the sponsoring organizations, did not participate in designation of the *National Parent-Teacher* for an award.)

Better Homes and Gardens—for distinguished coverage in a single article, "How to Undermine Junior's Teacher," by Stanley and Janice Berenstein.

Redbook—for distinguished coverage in a single article, "What's Really Happening in Our Schools," by Robert Bendiner.

Woman's Day—for distinguished coverage in a series of articles, "Planning a College Education," by Charles A. Bucher.

Architectural Forum—for editorial comment, on a national educational problem, in the editorial, "Schools for an Age of Confusion."

The Saturday Evening Post—for a cover illustration by Amos Sewell, published Dec. 12, 1959.

There were two awards for documentary interpretation on network television. NBC-TV was cited for "Back to School," a one-hour special produced by Reuben Frank and narrated by David Brinkley, while CBS-TV was cited for "Who Speaks for the South?" a one-hour program in the "CBS Reports" series, narrated by Edward R. Murrow, with Fred W. Friendly as executive producer and Arthur D. Morse as reporter-producer.

Other network television awards:

The Columbia Broadcasting System—for a discussion program, "How Can We Improve Education for Leadership?" a one-hour program in the "Great Challenge" series, produced by Harry Hasky, moderated by Howard K. Smith.

The National Broadcasting Company—for dramatic interpretation, "The Secret of Freedom," a one-hour special, written by Archibald MacLeish, produced by Robert D. Graff.

The American Broadcasting Company—for dramatic interpretation, "Teacher Comes to Dinner," a half-hour program in the "Leave It To Beaver" series, produced and written by Joe Connelly and Bob Mosher.

For network radio there were three awards for documentary interpretation as follows:

The Columbia Broadcasting System—for "Education Limited," a half-hour in the "Hidden Revolution" series, produced by Arthur Rabin, narrated by Howard K. Smith.

The National Broadcasting Company—for "Education in America," a 90-minute program in the "Image America" series, produced by Peter Lasally, narrated by Bob Considine.

The National Educational Television and Radio Center—for "Everybody's Mountain," a 14-week series of half-hour programs, produced by Robert Lewis Shayon, and broadcast through facilities of the 79-station National Association of Educational Broadcasters.

Awards for state and local reporting were as follows:

The Eloy (Ariz.) Enterprise—for an editorial, "What Makes Good Schools?"

Station KRON-TV, San Francisco, Calif.—for "Why, Teacher?" a 13-week series, produced in cooperation with the California Teachers Association.

The Baltimore News-Post—for continuing support of education, with special reference to interpretive comment by Neil Swanson in his column, "Spotlight."

Station W'NEM-TV, Bay City, Mich.—for a weekly half-hour program broadcast in cooperation with public schools of the area and for other educational coverage.

The Duluth Herald and News-Tribune—for comprehensive coverage, including a weekly Sunday feature prepared in cooperation with Duluth public schools.

Station KMOX-TV, St. Louis—for "Challenge," a weekly program produced in cooperation with four major school systems of Greater St. Louis.

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What I'd like to know is...

Professional questions answered by
HARRY A. FOSDICK
CTA Public Relations Executive

One Lunch Period

Q. Because a question in the February, 1960, CTA Journal referred to 30 "consecutive" minutes of duty-free lunch period (an error which your answer didn't correct), many of our teachers have adopted the notion that the duty-free time must be consecutive. The word "consecutive" does not appear in the state regulations, and we'd like you to clarify this point so that our teachers won't be misled.

Ans. So far as I can see, if your teachers are misled, it's by your district's interpretation, not by assuming that the 30 minutes of duty-free lunch period must be consecutive. Granted, the word does not appear in the administrative code section on this subject, but there are other words which could have no other meaning.

Section 26 of Title 5, California Administrative Code, refers to ONE duty-free lunch period, and states that the ONE period shall be not less than 30 minutes, and that IT be as near noon as possible. We can see no way by which two or more moments adding to 30 minutes can be considered ONE duty-free period of at least 30 minutes.

Voluntary Club Work

Q. Is voluntary supervision of a high school club during the lunch hour a violation of duty-free lunch period rules established by the State Board of Education?

Ans. Not if the teacher actually volunteers, according to CTA legal counsel. However, it would be a violation if the principal assigned the teacher to the club and told him to meet and eat with the students during lunch hour without leaving 30 minutes duty-free. But watch that word "volunteer." A teacher generally would be considered to have volunteered if, without fraud or duress, he acquiesced in the assignment without protesting the assignment at the time it was made.

"Annexed" Salary

Q. Our district is being annexed to an adjoining city district. The city salary schedule has been considerably higher than ours, so those of us being absorbed

in the city system are being placed on the city schedule at the point nearest the salary we have been receiving. Can this be done when we have had several years more experience in our present district than the new salary placement shows? For example, I've been here six years, but I am being placed on the fourth step of the city schedule.

Ans. We hold that teachers in annexed districts do have a right to the same experience credit in the annexing district as though they had been serving in that district. However, there has been no clear court precedent on this subject. In a well-documented opinion prepared for a similar situation, CTA legal counsel held that you would be entitled to full experience credit for the years you served in the annexed district.

Split Sick Leave

Q. I'm now on sick leave due to recent major surgery. My teaching assignment in a junior college is 1 to 4 p.m. and 7 to 10 p.m. My physician says I'm now able to handle the afternoon classes, but that the evening work might prove excessive for the next month. Can I legally teach in the afternoons and remain on sick leave

for the night hours? My assignment is now split between two substitute teachers, so this would cause no special inconvenience to others or to the district.

Ans. If you were teaching on a regular day schedule and went home at noon because of illness, you would be charged with a half-day of sick leave. So far as we can determine, the same principle applies to your case since it is a physical incapacity which prevents your fulfilling half the duties assigned under your contract.

Absence for Disease

Q. Will you please send me information as to this state's provision for a teacher's salary during absence caused by communicable disease? In my case lobar pneumonia developed, probably due at least partially to room temperature conditions at our school.

Ans. Absence caused by communicable disease is treated the same as any other sick leave in California. The teacher receives full salary while on annual or accumulated sick leave, which amounts to ten school days per year, with unused days accumulating from year to year.

After accumulated sick leave has been exhausted, the teacher receives the difference between his salary and the amount paid the substitute. This continues up to five months, minus the number of days accumulated from past years for which full salary was paid. Thus the maximum period during which the teacher would receive any salary would be five months and ten days.

Death Benefit

Q. In a recent discussion, one of our teachers said he understood that the survivor of a teacher would be entitled to \$400 from the state for burial purposes. Others of the group had never heard of this. Would you please clarify this point?

Ans. Yes, this has been a feature of the State Teachers Retirement System since 1956. The \$400 death benefit is payable to the teacher's beneficiary when death occurs after retirement. It's not added to the survivorship benefits now payable to the beneficiary if the teacher dies prior to retirement.

Travel on Duty

Q. Is a school legally obligated to pay
Turn to Page 39



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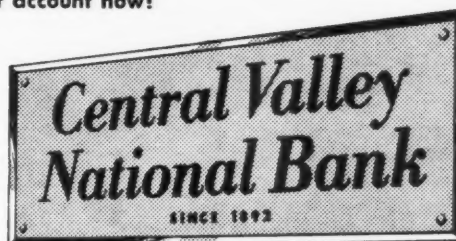
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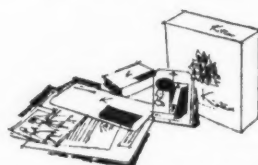
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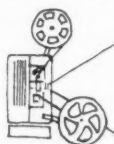


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mileage or travel expense to a teacher who is required to move from school to school within the district during each school day? Do you have any opinion on the subject in case it isn't a legal requirement?

Ans. Though it's customary for a district to reimburse teachers for travel expense when their duties require them to go from school to school, there's no legal mandate that this must be done. Sometimes this reimbursement is on a

mileage basis, but more often a flat amount is added to the annual contract in consideration of travel requirements.

Do I have an opinion? Sure, I have opinions on almost everything, and facts on some. I can see no justification for a district to use a teacher's car without reimbursement. If the assignment makes the teacher a peripatetic pedagogue, the means of transportation becomes a district responsibility. ★★

What teachers should know about **AMBLYOPIA**

By Rudolph Bock, M.D.

YOU MAY have wondered why some children in your school have to wear a patch over one eye. Perhaps you were told that the child had a "lazy eye," and that this was the way to force the eye to see and improve its sight. Possibly, you were also told to take the child's visual handicap into consideration by letting him sit close to the blackboard. Did you also know that amblyopia—or "lazy eye"—can be treated successfully *only* in small children?

Amblyopia occurs in about two per cent of all children. In other words, one out of every 50 has a weaker eye due to this condition. It frequently occurs in families. It is probably due to an arrested development of central vision in one eye, because this eye has not been used properly in the act of seeing during the first few years of life when vision normally develops. This is comparable to another situation with which you may be more familiar. When a young child who has had paralytic polio grows up,

Dr. Bock is an ophthalmologist in Palo Alto. The mask he describes has been used and commended by school nurses in Palo Alto, Sunnyvale, and other Bay Area school districts. Further information may be obtained by writing P.O. Box 199A, Palo Alto.

the weak or paralyzed limb will remain smaller because it has not been used. In like manner, if one eye has a higher astigmatism or far-sightedness, or is crossed, it cannot be used properly, and will stay behind in its visual development. The other eye takes over, and usually develops normal vision, so that an amblyope can very easily be missed. A "lazy eye," unless it is crossed, appears perfectly normal, even on careful inspection by the eye doctor. It is a "lazy eye," not a sick eye. The doctor, however, can suspect this condition on special examination, even before he can actually test the vision, if he finds a significant difference in the focus of the two eyes. The final diagnosis of amblyopia, however, will have to wait for the subjective response of the child on vision testing. This is why vision testing is so important.

We know an amblyopia detected before the age of five has a very good chance of being cured. Between five and eight the chances are fair, and between eight and ten doubtful. Those few cases which improve when treatment is started after ten, are so rare that they are made the subject of special reports in medical literature. Treatment consists of "exercising" the vision in the "lazy eye" by excluding (patching) the other eye. Obviously, the eye must be brought into proper focus by corrective lenses if a significant refractive error is present. The older the child, the longer it is necessary to patch the good eye in



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order to improve vision. A few weeks may be all that is necessary at the age of four, whereas many months or even a year may be required at eight years of age. Even then, the eye does not always develop full visual acuity. In severe cases simple patching will not help, and training in special schools will be necessary.

Why is amblyopia such an important problem? We are dealing with youngsters who have all their life before them, and with a condition that can be remedied *only* in childhood. Even if they see well with their good eye, they never

have good depth perception, which is a frequent requirement in a great number of jobs in our highly industrialized civilization. Amblyopes frequently complain of eye strain when they are required to do more visual work—probably because they use only one eye instead of the two eyes. Finally, if the good eye should be lost in adult life by accident or disease, amblyopia may become a crucial handicap because there will be practically no chance to improve sight at that time.

After three and one-half years many children will answer well to the Illiter-

ate "E" Chart so that their vision can be tested. Universal vision screening in kindergarten by the teacher, if not by the school nurse, would be a big step forward in early detection of amblyopia.

We must always remember that, as important as vision screening is in the higher grades to assure the child's ability to see properly, the early detection of amblyopia, by comparison, is even more important. And by early detection, we mean kindergarten or earlier. We will always be able to correct at a later age near-sightedness or other refractive errors that may interfere with the child's visual deficiency or comfort, but we will not be able to treat amblyopia effectively unless it has been discovered at an early age.

In checking children's vision in the schools we must be aware of a common pitfall. Children with amblyopia, without knowing it, have adapted themselves so well to their handicap that they are extremely clever at peeking around conventional occluder devices, unless they are very closely watched during testing.

A new occluder has recently been developed to make screening foolproof. It not only eliminates peeking, but makes screening more rapid. The masks are molded of white plastic and have two 8mm vision holes. A moustache-like movable flipper arm, which allows only one vision hole to be open at a time, is mounted as shown. When one vision hole is opened, the other one is securely shut. The oblique position of the flipper arm allows the examiner standing at the vision chart to tell from afar which eye is being tested. This eliminates the necessity of a helper, who ordinarily would stand by the child and cover one eye. With the occluder mask the child can move the flipper arm himself, or another child can do it for him. The mask is well accepted by children of all age groups, who think it is great fun, particularly when the screening is done around Halloween time.

The standard mask fits any child from four to twelve. It can be scrubbed with soap and water, and therefore, easily cleaned. We have never encountered any transmission of disease while screening with this mask.

In our area 13 school nurses screened more than 10,000 elementary school children during the last two years, and identified 25 per cent more amblyopes than with the conventional occluder devices (paper cups and cardboard) that were used on previous testing. ★★



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The Human Teacher is Still Best

A negative viewpoint
is argued here by

Fred L. Casmir

A NUMBER OF YEARS ago one of my teachers said: "On certain occasions the most positive contribution an educator can make is to explore the negative potential of a problem." It would seem self-evident that producers of "teaching machines" will not attempt to sell them on the basis of what they CANNOT DO, yet we will never be able to appreciate their value unless we adopt a tentatively negative point of view.

My first reaction to teaching machines could probably be recorded as something like this: Well, so we have another "little black box." Undoubtedly somewhere, in the dark and forgotten past, the first man conceived and gave to his fellow-men the first "little black box," and his fellow-men stood by in awe. There were those who, with darkened faces, pronounced the great truth revealed to them: "It'll never get off the

Mr. Casmir is an assistant professor in the department of speech at Pepperdine College, Los Angeles.

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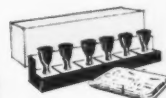
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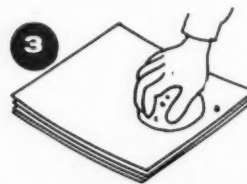
Key to photo: green pepper, celery, onion, carrot make clown; onion, celery, pepper, and carved potato and carrot make design.



1 Slice vegetable; cut design. Blot excess moisture and let stand half hour to dry.



2 Mix tempera or powdered paint to a consistency of cream; apply to the design.



3 Place paper upon pad of newspaper. Press design to paper; hold firmly; remove.

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ground!" And others, with the glow of a seer on their faces, stated categorically: "Man's entire future will be changed!"

At a time when we are already relying entirely too much on the efficacy of the machine, even educators are beginning to make dark predictions of impending doom if "we do not follow the trend." Generally it is stated that business and industry are leaving education far behind BECAUSE we use antiquated methods and do not "go with the times." But a significant difference must be remembered: the repetitive actions in industry and business which are being well served by machines, cannot automatically be compared to the needs of education and its developmental function.

Mechanization cannot be denied. Its influences and its very presence in our life is an important factor in man's development. However, one should not overlook statistics which indicate that "industrial progress" has by no means always meant development of human values. At present the centers of industry and mechanization represent man's outstanding problem areas in the field of human relations.

Education is perhaps the one major area in American life, and indeed in the life of the human race as a whole, in which individualism can and has flourished. At a time when many people, including teachers, become concerned over the "levelling" influence exerted by many powers, it is at least a valid question to consider the teaching machine from the standpoint of centralized control. This is not a new question or argument.

According to this argument, teaching machines really are not very different from textbooks which now provide a means of centralized control in our school systems. One cannot help but ask what has happened to all the old arguments indicating that audio-visual aids can help to make a deeper impression than the printed page. If there is no difference in the impact of the teaching machine as compared to a question-and-answer section in a textbook, why would anyone bother developing such a machine? The teaching machine represents a more powerful medium of centralized control in education.

It is not necessary to enter into debate as to whether or not the machine will eventually replace the teacher, or if it was developed for that express purpose. The thoughtful student of man's history

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and man himself should be able to supply his own answer. Much more important is our concern with certain inadequacies of the machine in the teaching situation.

One factor mentioned often, and directed to the overworked teacher of today, is that the machine will free him or her from certain tedious tasks. Let us consider it a moment. Would a conscientious teacher really be satisfied with having a machine tell her that her pupils gave correct answers to questions asked of them? Would she not go back to the machine to study the answers in order to determine those intangible bits of correct information to which the present machines cannot respond, but which suggest to the alert teacher the possibility of further teaching? Are areas within the broad field of education so clearly separated that the teacher would respond only to the correct facts given in reply to a question the machine "asks"? Wouldn't a conscientious teacher study replies of her pupils for such matters as correct spelling and correct grammatical structure?

The influence of surrounding factors on the learning situation is well established. Many otherwise carefully planned experiments eventually failed because these factors were not sufficiently controlled. Exactly what the influence of a machine on the learning process will be has not been shown.

We must realize the almost obvious fact that eventually machines will be able to store and supply *facts* much more economically and effectively than man will ever be able to do. Would it then not be more meaningful to develop means of teaching students careful thinking, association of facts with situations in which facts are to be used? Considering today's educational theories and the possibility of future development, the teaching machine would seem an attempt to regress to the mere teaching of "facts." Anyone familiar with the field of education knows that "facts" are by no means as generally agreed upon or as consistently applied as some people may believe.

What will the extensive use of teaching machines do to important habits of oral expression? We are living in a society which depends on oral communication. Most students now entering college already lack facility in the use of speech. Teaching machines could easily contribute to this failure of adjusting sufficiently to the requirements of our society.

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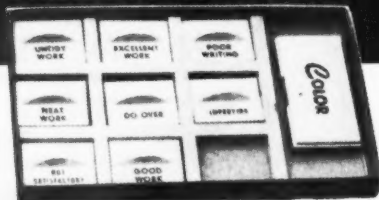


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How may one assess and evaluate the conduct of a teacher who responds wisely and calmly to a girl's emotional turmoil or a boy's psychological revolt against regimentation? Can a machine be so finely adjusted that it can sense a child's individual needs, the complexity of his social background, and his cultural inheritance?

One thing a machine cannot do, at least at the present time, is to deal effectively with semantic problems. To the teacher of foreign languages, this indicates some specific problems. It reminds me of the student who looked up in a dictionary the German word for the English term "trunk." This one happened to be an elephant's trunk. This particular elephant ended up with a suitcase (in translation) rather than with the elongated nose typical of such an animal. Or take the example of the confused German officer who was given the American commander's reply: "Nuts" in answer to a demand for surrender during the Battle of the Bulge. His question, under the circumstances,

was intelligent: "Is this to be taken negatively or positively?"

The teaching machine could conceivably become the teacher's adversary in the case of a student who likes to do all of his thinking in a strictly "black and white" fashion, admitting no areas of "gray." Furthermore, it should be pointed out that "Practice does not make perfect; it does not even necessarily make permanent."

A student may in many cases literally try until he finds the correct answer which will "satisfy" the machine. Whether such a procedure is a desirable function of education is debatable. My main concern is that previous "experimentation" in the field of education should have taught educators one very important lesson (which we may effectively borrow from business and industry): Test and retest any device to be used in our schools *before* it enters the school. We must develop methods, even as industry has done, which will protect the minds of our children from irresponsible or harmful manipulation under the stimulus of an amoral machine.

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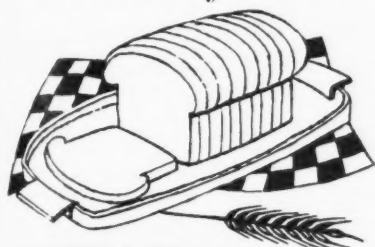
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California Steps Out . . .

(Continued from page 15)

person in their education, audio-visual or psychology departments who are closely following the field of teaching machines. Last year, UCLA offered a course on teaching machines, and this spring, San Francisco State had a workshop on teaching machine programming. The USC audio-visual department is planning to offer courses in this area next spring.

Broad use is predicted

From this brief survey, it becomes apparent that teaching machines have a good start in this state, and if the trend continues, teachers will begin to see them in their schools in the next few years. There are several cheerful notes for the teacher in this prediction. First, there seems to be no possibility of any teachers being thrown out of work by a machine. Secondly, machines can do much of the dull, routine work such as drill, factual presentations, some paper correction and, occasionally teach subjects with which the teacher is not yet



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familiar. Finally, machines will help place the teacher on a higher plane (academically by allowing the human teacher to concentrate on the more creative aspects of teaching and financially by doing a better job with fewer man hours expended for more pupils). Automation has entered nearly every aspect of our lives; it now steps into the classroom. ★★

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editorial postscript

"WHAT'S NEW?" is a trite salutation, grown so meaningless from overuse we're sometimes moved to respond with an earth-shaking Munchausenism. But novelty is a partner of interest and it's always our hope that the contents of the *Journal* will prove interesting. So we plan this year to ride the theme of "What's new in education?" We'll fall off frequently. We'll then walk the well-trodden path because we know there is also value in the current and the ancient, if only to give us better perspective.

Probably the *Journal* will hit the high point in "newness" with the exposition on teaching machines in the opening pages of this issue. The idea of machines to teach catches the imagination, almost certainly leading to disdainful opposition, speculative study, or enthusiastic endorsement.

In our study of the current professional literature on automated technology of the classroom, we find an amazingly large and profound bibliography on the field. Although much of the testimony of those who write on teaching machines bears the mark of authentic psychological research, some of the pieces in print are unmistakably the work of sales publicists, tax-savers, or science fiction writers. It is necessary to smell out the naive and the unrealistic and to identify the equipment designed to operate on proven principles of educational effectiveness and within the limits of acceptable programming control.

As this issue points out, there are many kinds of "machines." But it is significant that those earning the highest favor of educators have common characteristics and purposes which will *supplement* the work of the human teacher. There is no great debate among educators (except for the contention that audio-visual specialists should be the chief spokesmen in the electronic age) about what *kind* of machine to use; that will be the function of industrial sales managers.

It is reassuring to discover that the teaching profession is responding to the challenge of the machine. Research based on psychological principles has been thorough. Workshops on the teaching machines were conducted in several California cities this summer. And the metropolitan press generally has treated the subject of classroom automation with restraint and authority. It would be a mistake for the profession to fumble a potential opportunity (as it did with radio) or to reject the machine without careful and deliberate study.

IT IS an inherent purpose of your *Journal* to reflect reader participation, best expressed in news and features about the Association's program and services and its record of representative decisions. It would be obviously impossible to find space in these pages for the expression of all individual opinion—but controversial views often appear over teachers' signatures in our letters columns.

We hope this year, as we attempt to explore "new" ideas in education, that the "feedback" from readers can be encouraged in several ways. Let's look at the ways you can complete the circuit of communication: (1) Write a letter to the editor. Keep it brief and pointed—and be sure to sign it. (2) Contribute your editorial manuscript on "how I did it" in a

successful classroom teaching experience. Again, keep it a brief description, the kind of item that would fit into a column of "teacher tips." (3) See that information reaches the *Journal* regarding any important educational news in your area for use in the condensed news columns. (4) Direct your questions on professional problems to Harry Fosdick for his use in the eight-year-old column, "What I'd Like to Know Is..." (5) Take your tip from Don Robinson, who writes from his rostrum as social studies teacher at Carlmont high school on his point of view as expressed in "Teacher Talk" on this page. Dr. Robinson will have a few words about the contents of each issue, sometimes ending with the implied question "What do you think?"

J. W. McK. ★★

Teacher Talk

"TEACHING MACHINES will revolutionize the schools. The students will learn so much so fast we teachers will be free to work with individual problem cases. Then we can really teach."

Five teachers pushed their chairs back from the lunch table and launched into the brief but spirited discussion that always preceded their afternoon classes.

"Teaching machines are for the birds. When my job becomes a job of policing a roomful of kids who are learning their lessons from a pinball machine, I'm through."

"You won't have to worry about that during your lifetime. Half the teachers in the country haven't begun to use films or phonographs or radio or television yet. So you can bet it will be many a year before they are sold on electronic teachers."

"School boards won't be sold on them in a hurry, either—not at five hundred bucks per station, plus all the uncertainty and cost of maintenance, programming, replacement for obsolescence, and just plain breaking down and wearing out."

"It's just a gadget, and we've got too many gadgets already. You can have the machines. Give me the good old-fashioned classroom, a textbook, and a teacher with freedom to teach the way he knows how."

"Even if the way he knows how isn't the best way? Even if we prove that youngsters can learn twice as fast with machines?"

"One thing these electronic monsters will do. They will make us all take a good long look at our teaching to see if we are using efficient methods. Are you teaching one bit differently, Joe, than you were thirty years ago? Honestly, has your teaching benefited from the results of psychological research and technological advance in the last generation?"

"I'm not sure psychology and research have proved a thing in the last generation. Psychologists have their fads and their cycles just like dress designers, but have they proved anything about how children learn—except that they all learn differently?"

"There goes the bell. Three more classes and we've got it made. The way I feel today I wish we did have teaching machines. Then at least the kids would be spared my bad humor. Machines don't get tired, you know. They don't get mad, they don't get impatient, and they don't have favorites."



PHOTO: FRANCES McLAUGHLIN-GILL

Should a gifted child grow up to be a housewife?

Educational experts estimate that the gift of high intelligence is bestowed upon only 1 out of every 50 children in our nation. When that gifted child is a girl, one question is inevitably asked: "Will this rare gift be wasted if she becomes a housewife?"

Let these gifted girls answer that question themselves. Over 90% of them marry, and the majority find the job of being a housewife challenging and rewarding enough to make full use of all their intelligence, time and energy.

But what of the average American wife? How well equipped is she to meet the ever-increasing range of responsibilities placed on her today?

If education is a guide, then America's women have the best qualifications for the job. Over 80% of the nation's young women have attended high school, 3 out of 5 graduate, and over twice as many receive high school diplomas today as did their mothers back in 1930. This fall alone, 1,228,500 young women will attend college, and by 1970 this figure will be up 73% when nearly 1 out of every 3 students graduating from college will be a woman.

This rising educational level among American women is reflected not only in their intellectual, social and political activities. It also is seen in the prudent way today's wife conducts the affairs of her family. In her daily roles of nurse, educator, economist and just plain housewife, she is constantly seeking ways to improve her family's life.

Your own wife has probably brought many improvements into your home. Millions of women—shopping for half the families in America—do so by saving S&H Green Stamps. Perhaps your wife is among them. If she is, you know how she feels about her S&H Green Stamps.

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